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## Rerolling Rails at Sweet's Steel Co.

New Rails for Old—Recovery of 80 Per Cent of Old Tonnage—Rails Split for Rolling Angles and Flats for Fence Posts and Bedsteads

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IN a plant rerolling rails there are three main sources of supply of the raw material—rails which after years of use on the railroads are taken out because of wear, principally on the gage side of the head; rails which after use by the railroads are taken up to be replaced by rails of heavier section; seconds or discards from the mills rolling the original rails, which are far too good for scrap, but which will not pass the specifications under which they were rolled.

Raw material obtained from these sources is handled primarily in two ways after being heated to rolling temperature in a continuous furnace. It is rolled down into smaller sections, with a reduction to 20 or 25 per cent of its original weight per yard; it is split into three parts, head, web

and flange, by passing through a set of splitting rolls, and these three parts are then separately rolled into angles, concrete bars, splice plates, steel ties, fence posts, etc.

Both of these processes produce large tonnages at the plant of Sweet's Steel Co., Williamsport, Pa., and, with some modifications perhaps, also at other plants reclaiming old rails, such as the West Virginia Rail Co., Huntington, W. Va.; the Buckeye Rolling Mill Co., Newark, Ohio; and the United States Rail Co., Cumberland, Md. In all, there are 18 rerolling mills in the United States.

At the Sweet's Steel Co. plant the backlog of the business during times of depression like the present is the mining industry, for thousands of tons of light rails are sold to the coal mines in Pennsylvania and elsewhere. As the plant lies between the hard coal mines of eastern Pennsyl-

\*THE IRON AGE, New York.



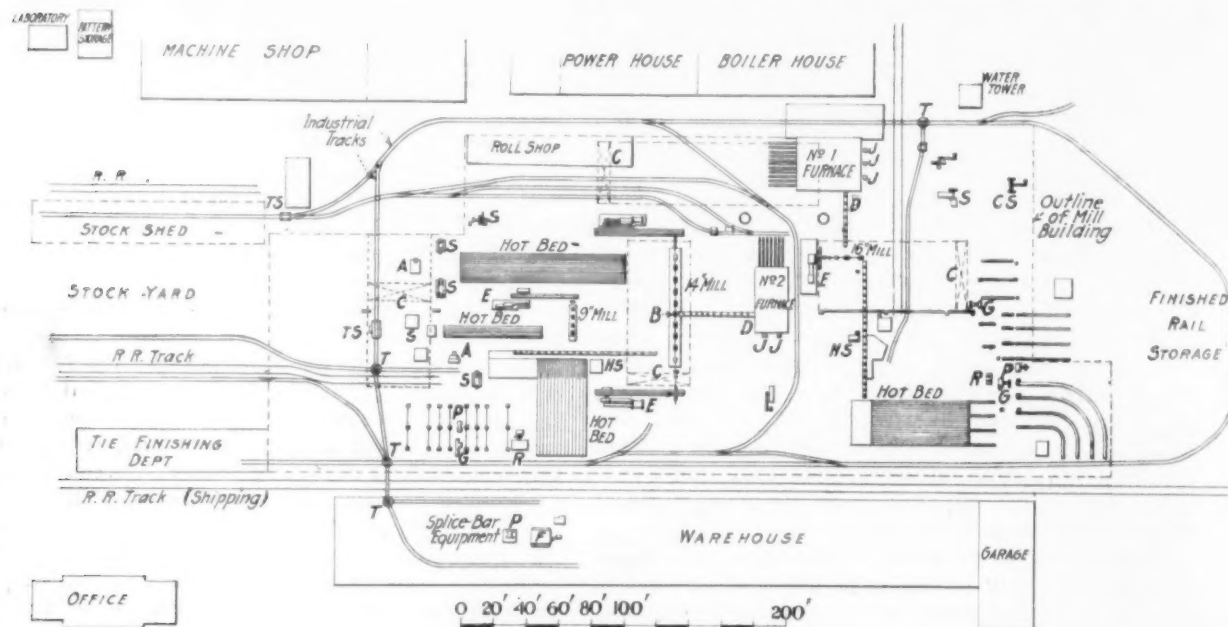
Rail-Breaking Machine and Part of Stock Yard for Raw Material. The wedge directly under electric lights is dropped between plunger and cutter to break the heaviest rail as a child breaks a straw—by bending it locally far beyond the elastic limit of the material. Scrap ends in foreground, mostly with bolt holes, form fodder for the open-hearth furnaces. Car of broken lengths, at right, is ready for delivery to heating furnace, and thence to rolls. Locomotive crane for handling rails and unloading cars shows in middle distance

vania on the one hand and the Clearfield section of bituminous mines on the other, it is ideally situated for supplying both.

Next to the mines the largest outlet is export, and the company is nearer tide-water than any other American rail mill except that at Sparrow's Point. Portable track and accessories, for plantation work, are sent to the sugar establishments of Java, the Philippines, Cuba and Hawaii, and similar material to Japan and South America. The yearly records show that, during the war, from 75 to 93 per cent of the entire product was shipped abroad, much of it going to the American Expeditionary Forces in France, both for the laying of light railroads in the handling of supplies and for auxiliary purposes, such as supports for covers

cars, by mule power, to the rear of the two furnaces as needed.

In rolling light rails from heavy ones the first operation consists in nicking and breaking the rail. The nick is a single small impression, perhaps  $\frac{1}{8}$  in. deep, placed on one edge of the rail flange by a nicking tool of sledge hammer dimensions and swung by a workman, just like a sledge. Such a nick is placed immediately back of the bolt holes in the old rails, for the rail end containing bolt holes is not rolled into new rails. The other nicks along the flange of the rail are spaced at intervals corresponding with the weight of the old rail and the section and length into which it is to be rolled. As the great majority of the new rails are specified 30 ft. in length, a long-enough



General Layout of the Rolling and Finishing Plant of Sweet's Steel Co., Showing the Locations of the Two Furnaces, Three Mills and Four Hot Beds; the Routing of Material from the Stock Yard at Left to Finished Rail Storage at Right; the Railroad Connections and Industrial Trackage. The open-hearth department, beyond the power house and not shown, absorbs the scrap produced in the mill department, including rail ends broken off to avoid bolt holes. Letters in the diagram indicate as follows: A, angle straightener; B, splitting roll stand; C, overhead electric crane; CS, cold saw; D, furnace discharge; E, mill engine; F, furnace; G, gag press straightener; HS, hot saw; J, underfeed stokers; P, punch; R, roller straightener; S, shear; T, turntable; TS, track scale

over trenches, etc., and thousands of tons of angles for fence posts for barbed wire entanglements were sold to France.

At present the mill is working substantially full, with about 300 men on single turn of 10 hr. The capacity of the plant with the present mills in use, and working on double turn, is estimated at 100,000 tons per year, a figure which will be increased to 130,000 tons when additions and alterations now in preparation are made.

This plant occupies a site of 165 acres in the aggregate, much of which has not yet been improved. It has direct connections from both the Pennsylvania and the Philadelphia & Reading railroads, whose locomotives do all the switching in the yard. Materials coming in from the railroads in gondola cars are unloaded by electric magnets carried on booms of steam-propelled locomotive cranes, one of 15 tons and the other of 5 tons capacity. Current for the magnets is taken from plugs conveniently located. Both cranes are fitted also with grab buckets for handling coal.

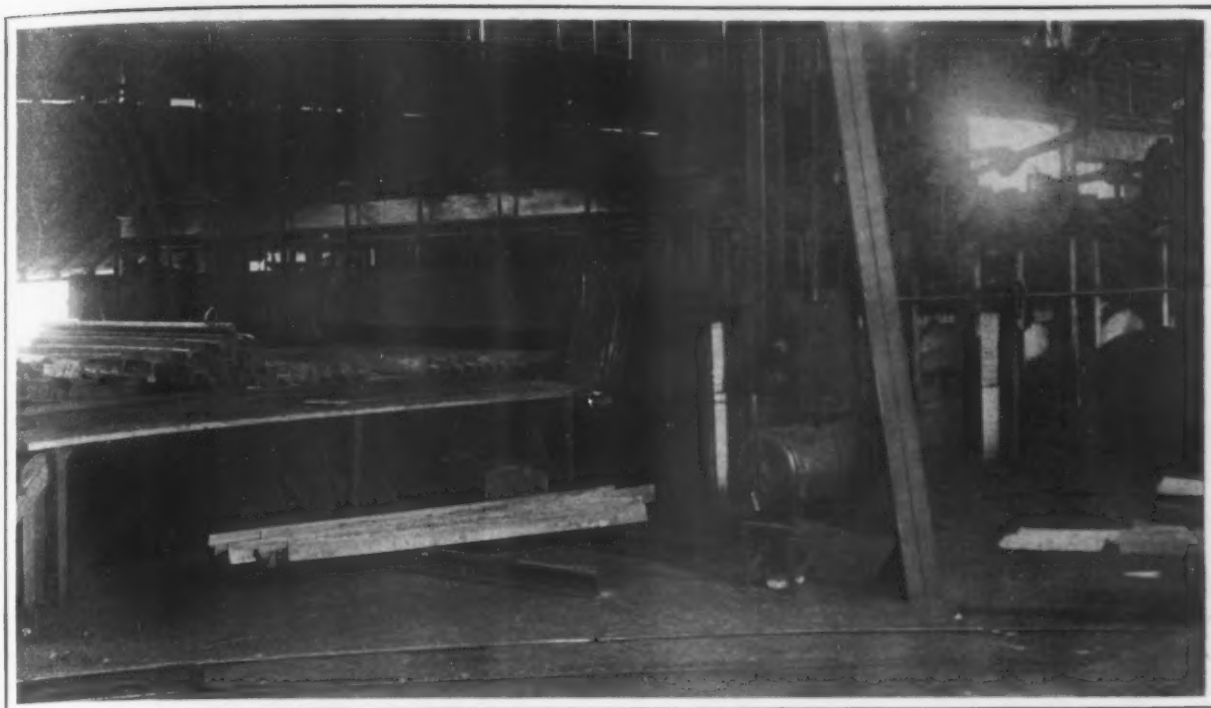
Stock is piled according to section, within convenient reach of skids, upon which it can be handled to the rail breakers, of which there are three, with a fourth ordered. From the breakers pieces to be rolled are carried on narrow gage

piece of the old is taken to give a 30-ft. length in the new, plus the necessary amount of crop at the ends. Small though the nick is, it appears to be of material help in breaking the rail.

The nicked rail is run through a breaking machine, which has a plunger of very short stroke, impinging on a cutter which is thrown into action by the dropping of a wedge between the plunger and the cutter. This method of fracture exposes the interior surfaces of the old rail at a number of points, and permits the discard of any portions showing flaws. It must be remembered, of course, that most of these rails have already stood up under severe usage for years in heavy railroad service, and the steel may therefore be regarded as having been tried and found true.

Lengths of rail to be heated and rerolled are charged into one or the other of two continuous heating furnaces, in which in ordinary practice they remain for  $1\frac{1}{2}$  to 2 hr. before being withdrawn for rolling. They are charged in two parallel rows and pushed forward by independent dogs controlled by a backgeared electric motor, with a further double set of gears interposed to make the action of the dogs very slow.

The furnace for No. 1 mill has a width of 29 ft. inside and a length of approximately 40 ft.

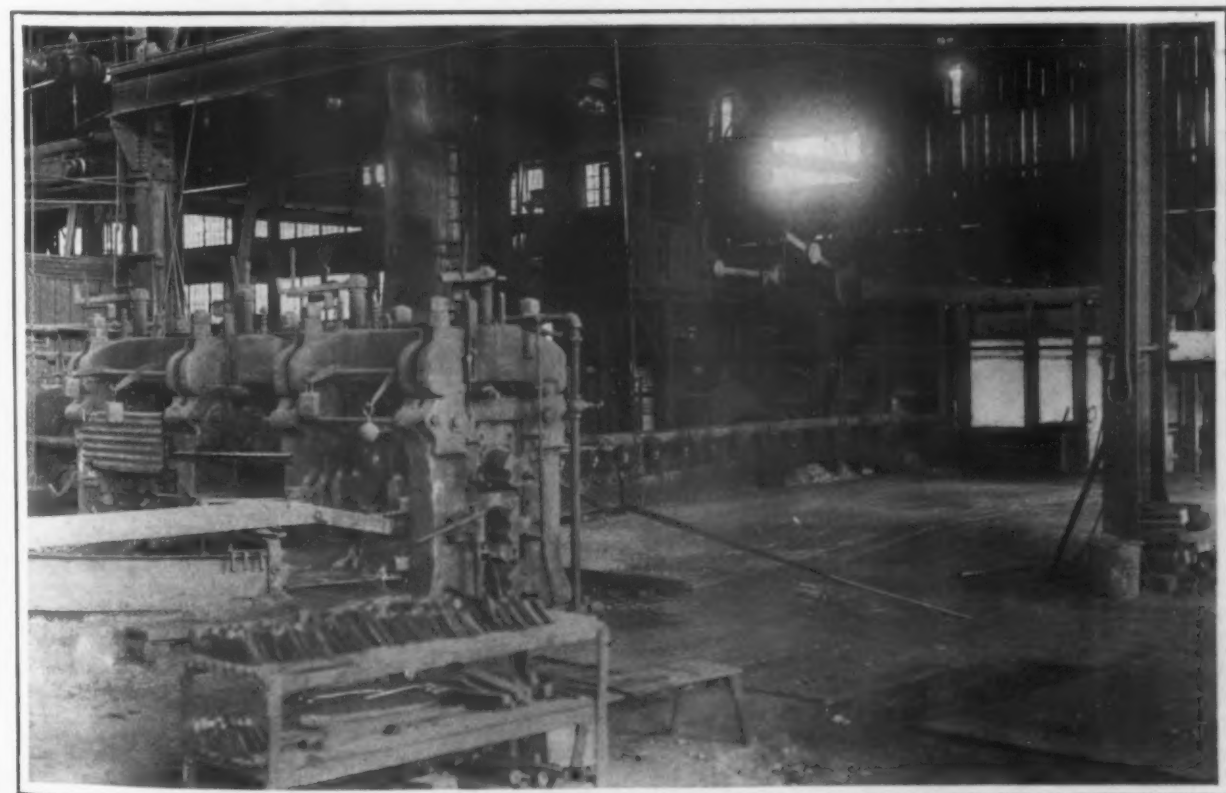


Charging Platform for Continuous Heating Furnace. Material is pushed through furnace by electric power handled by Shepard controller in center, and leaves furnace by an endless chain conveyor

The pieces slide down water-cooled skids, while the roof of the furnace is also water-cooled. An endless conveyor chain at the lower end of the furnace runs through from side to side and over large sprocket wheels on the outside. This carries the heated pieces to the rollers in front of the mill. The conveyor chains are cooled by passing through a water tank on the return trip under the furnace. The rollers delivering to the mill are standard design, operated by electric motors. The mill is driven by a single cylinder engine 24 x 42 in. at about 120 r.p.m. The mill itself (Mesta) consists of two stands of three-high rolls, and is used for rails only.

No. 2 furnace is of the same length and type as No. 1, but is only 18 ft. wide inside, as it handles smaller pieces. No. 2 mill consists of 8 stands of 14-in. three-high rolls, with an auxiliary of 3 stands of 9-in. three-high rolls. This mill, built by the Lewis Foundry & Machine Co., operates at 90 to 120 r.p.m. The 14-in. mill has two engines, one on either end, both using rope drives and each having a cylinder 28 x 48 in. The 9-in. mill is driven by a Hamilton-Corliss engine with cylinder 20 x 42 in.

Both furnaces are fired with bituminous coal charged by Jones stokers. The record tonnage output of No. 1 mill for a 10-hr. turn is 170 gross



Sixteen-Inch Rerolling Mill, with Furnace and Approach Table in Background. In this mill the heaviest sections of rails are rolled down into light rails for mine, plantation and industrial use



tons of small rails. The mill averages, however, well over 100 tons, day after day.

#### Reduction of Rails in Seven Passes

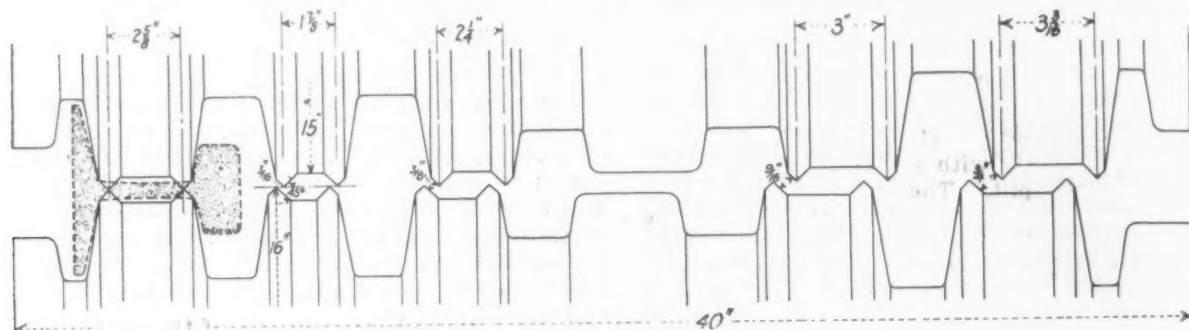
Coming out of the furnace at a white heat, the rail to be rerolled is passed through from 7 to 9 passes, by which it is gradually worked down to the new section. In general 7 passes are used in working a rail of 130 or 136 lb. to a 35-lb. rail, and the same number of passes for working a 125-lb. rail down to 30 lb., a 100-lb. rail down to 25 or 20 lb. and an 80 or 85-lb. rail down to 16 lb. All of the above work is done on the 16-in. or No. 1 mill. These involve reductions which average from 17 to 21¼ per cent per pass. Similar figures for the smaller 14-in. No. 2 mill show 7 passes for working a 60 or 70-lb. rail down to 12 or 16 lb., or for working a rail of not over 60 lb. down to 8 lb. These reductions are from 19 to 25 per cent per pass. Two additional passes, or 9 in all, are required to work rails between 70 and 100 lb. down into 12 to 16-lb. sections. For the 100-lb. rails these reductions average 21 and 18½ per cent per pass.

We are told by competent steel makers that, other things being equal, the more working a steel section receives without distortion, the

All rails are straightened immediately after passing through the hot saw and partial cooling. The smaller gages are handled on roller straighteners, which give simultaneous straightening in both planes; larger sizes are straightened on gag machines. All rails are then inspected carefully; rails having small flaws are at once classed as seconds and separated from the first quality rails. The rail ends are punched for bolt holes and the rails are then ready for shipment.

Finished rails are carried in stock in a yard where the different weights are separated into piles, and the firsts and seconds similarly kept apart. This stockyard has a present capacity of about 3000 tons, and it is the policy of the company to keep on hand a good stock of rails of all sizes, from which a carload or more can be shipped on a day's notice or less, without requiring the rolling of the order on the mill. This saves delays and labor charges in roll changing for the multiplicity of the smaller orders which naturally come to a plant of this type. In the stockyard is a punch for putting in the electric bonding holes of rails, when needed, for of course the bond holes are special, and hence are punched for each separate order.

Steel ties designed for regular use for rails



Splitting Rolls. Showing How a Rail of 100-Lb. Section Is Sliced into Three Parts by the Two Cutter Edges on the Collar. Lighter and heavier sections are split in the narrower and broader passes, respectively; the collars are all offset

stronger it becomes. In rerolling rails from large sections into small sections, we start with material which has already been subjected to a normal amount of working from the ingot to the bloom and to the finished rail. It may be inferred that a reheating and rerolling of this steel must improve its quality, for not only should the reheating remove the effect of possible crystallization from the hammer of innumerable wheels on rail ends and of unbalanced locomotive drivers coming down with a thud at every second stroke of the piston, but also there is further working of the material through seven more passes, with all the elements of physical homogeneity of metal which this process confers. A single instance of the result of this work may be shown in the fact that only one rail out of 60, of 30-lb. section, made to a certain rigid foreign specification, failed to withstand the drop of a 1500-lb. weight from a height of 15 ft.

In the rolling of these light section rails a certain proportion will be produced which, from some flaw, will be classed as seconds, and sold at from \$2 to \$6 less per ton than the first grade. Curiously enough, there have been times when the demand for these seconds has been so heavy, because of the differential in price, that the sales department has asked the mill department to roll seconds. A great many mine owners apparently feel that the small flaws which determine a second will not invalidate the use of the rails for their purposes, and hence are glad to take advantage of the price saving.

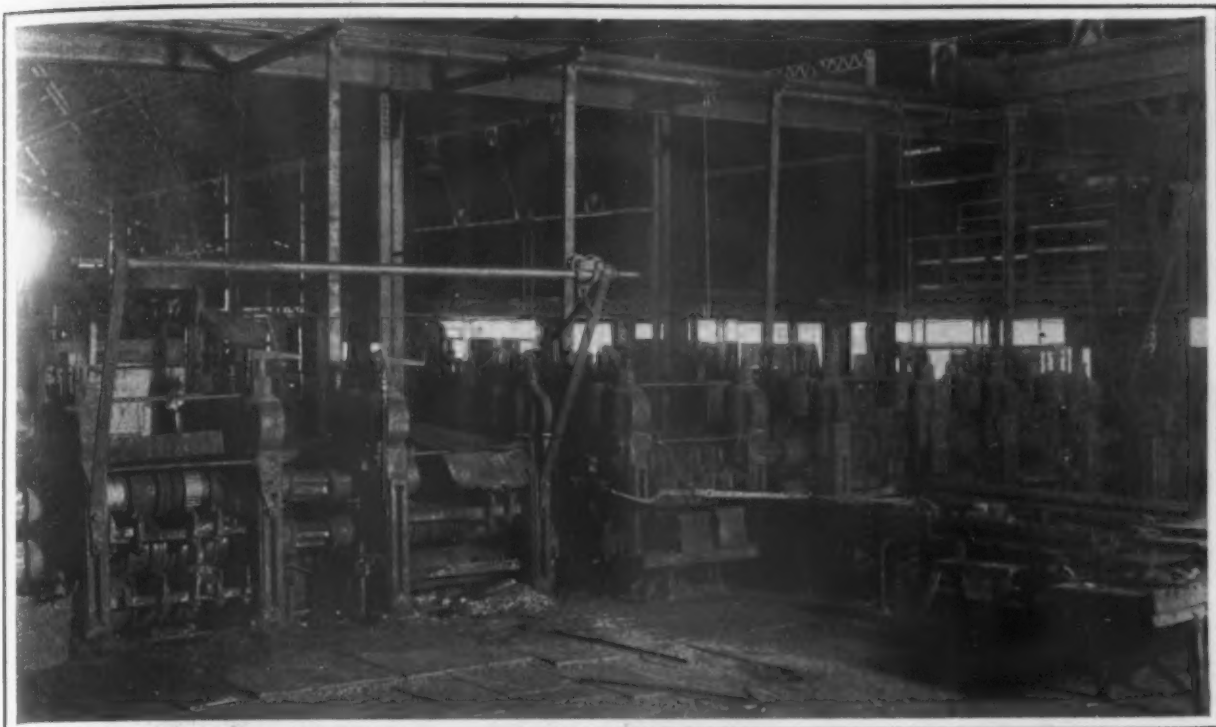
from 8 lb. to 45 lb. per yard form an important part of the company's product. These are rolled in two sizes, the 4-in. weighing from 2½ to 3¼ lb. per foot and being used up to 20 lb. rails; while the 5-in. size weighs from 3½ to 4½ lb. per foot and is used for the larger rails. This 5-in. size is occasionally used with 50-lb. and 60-lb. rails, but then calls for closer tie spacing. These ties are double grooved and the flanges bent over to make good bond with the road ballast.

Another important product consists of splice bars for all sizes of rails rolled. Both plain and angle spliced bars are made. These are punched hot, being reheated for this purpose in a small furnace and handled in a gang punch which pierces each bar with four elliptical holes properly spaced according to the standards of the American Society of Civil Engineers. Rolled clips for fastening the rails to the steel ties are also produced here, each clip having the customary lug rolled onto its lower surface.

In rolling rails into sections other than light rails, they are first run through the splitting stand of the No. 2 mill, which separates the web from the heavier sections of flange and head, the two latter being of approximately the same weight per running foot. Rails used for this purpose do not have to be broken off to eliminate the bolt holes, because the flange and head of the rail have no holes and are good for the entire length. They are broken, however, into lengths convenient to handle.

As the rails to be split are of all sizes, from 60 lb. per yard to 136 lb., with corresponding dif-





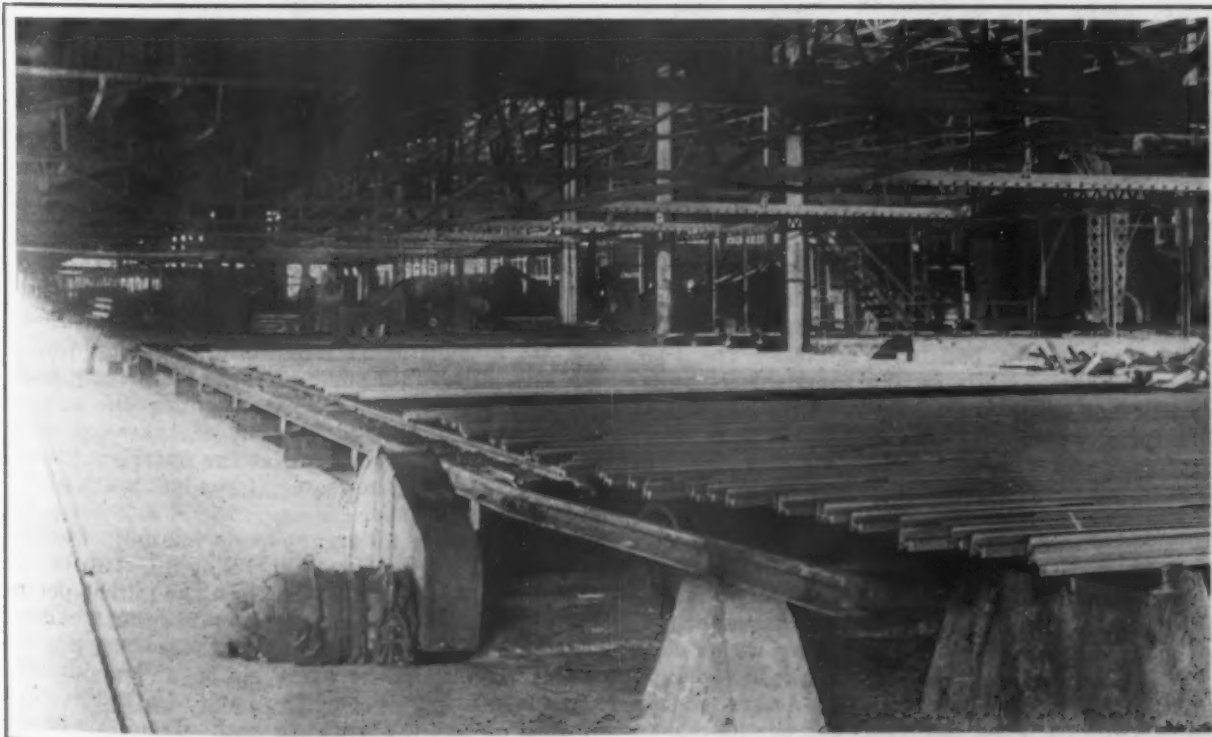
Delivery Side of 14-in. Mill, Showing Five of the Eight Stands. Including the Stand Used for Splitting Rails into Three Parts. The furnace is in background at left

ferences in height of the web, the splitting rolls have five passes with cutter collars from  $1\frac{1}{8}$  in. to  $3\frac{3}{16}$  in. apart, in steps of about  $\frac{3}{8}$  in. These five passes cover with sufficient exactness all the sizes to be split. These passes are all offset enough from each other to avoid the rubbing of idle cutters as the rolls are brought closer and closer together to take up the gradual wear of the cutters in use. But this wear is reported so slow that the rolls will function for months without redressing.

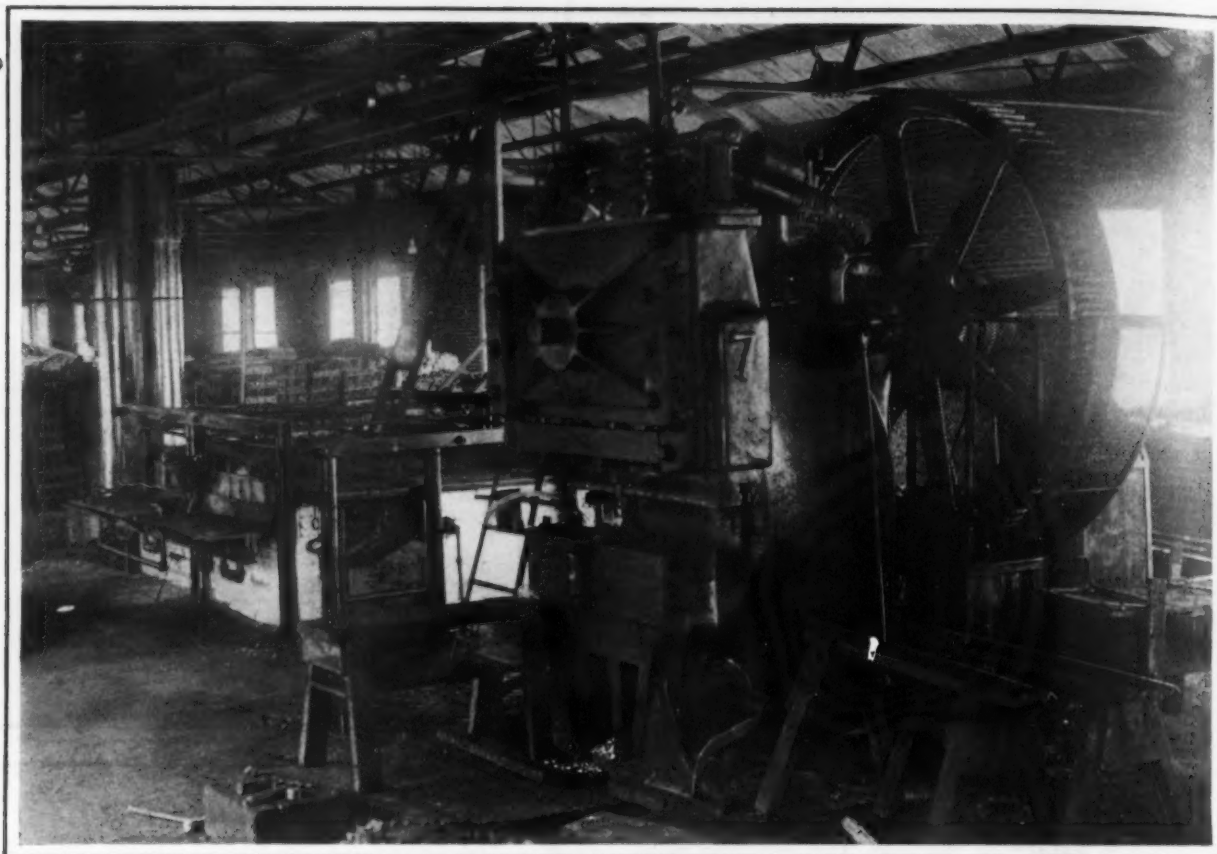
Each cutter collar, as shown in the drawing, comes to a fairly sharp edge, with faces 90 deg. apart, each surface being 45 deg. from the axis. The rolls are set with the cutter edges  $1/32$  in.

apart. The head and the flange of the rail lie within "pockets" between the rolls, as shown at the left, where the dotted area represents a 100-lb. rail being split, in a way which would do credit to Mr. Lincoln.

As the splitting stand is intermediate in the group of stands comprising the No. 2 mill, there being three stands on one side of it and four on the other, it was formerly the custom to roll the head in the rolls on one side of the splitting stand and the flange in the rolls at the other side, both coming out with either the same ultimate section or a different section, according to what the orders might call for. The web was (and still is) taken from the splitting stand to the 9-in. mill, which,



Cooling Bed for Finished Rails, Which Have Not Yet Been Straightened. Hot saw appears beyond rails at right. The shipping track is just out of the picture, at the left



Gang Punch for Putting Bolt Holes in Splice Bars and Clip Holes in Grooved Steel Ties. The oil-fired furnace at left is for heating the splice bars and ties before they are punched. This equipment is at present being duplicated. Stacks of splice bars show in background

though run independently, is regarded as a part of the No. 2 mill.

With the falling off in the business of making metal beds, through the present vogue of wooden beds, the large tonnages of bed angles formerly rolled have been considerably lessened, so that now the mill is set up to roll the head and the flange both on the same side of the splitting stand, while the stands on the other side are adjusted for rolling the lighter weights of rails, down to as small as 8 lb. per yard. This makes it possible to get along with fewer roll changes, but, of course, leaves one-half of the 14-in. rolls idle most of the time. However, by a single change—from the splitting rolls to the first roughing rail rolls—no other changes have to be made in the mill so long as the same section of rail is to be rolled on the one side, or the same section of angle for beds or springs or for fence posts on the other side. The labor economy of this arrangement has dictated its adoption.

When a rail has been split in the No. 2 mill both the head and the flange pass through four roughing passes, two strands and two finishing passes in making bedstead angles. The four roughing passes, while on the same sets of rolls, are different passes, but they bring the two pieces of material to the same section—a flat of perhaps  $3 \times \frac{1}{4}$  in., after which the two pieces are run through the same passes in the strands and finishing stands, the two finishing passes giving the preliminary and final bending of a thin flat into an angle.

To reach the flat of  $3 \times \frac{1}{4}$  in., the head of the rail is passed through two roughing passes which flatten it, and then through two passes which edge it down to the requisite width. The base or flange is flattened through one pass, edged through the next two and flattened again through the fourth.

One order of considerable bulk where this was being done called for bent angles  $2 \times 1\frac{1}{2} \times \frac{1}{8}$  in.

thick, to be used as the end pieces of bed springs. Specifications regarding length of delivered pieces were very rigid, so that the shearing had to be done almost cold, as  $\frac{1}{16}$  in. was the limit of variation in length allowed. But no further work has to be done on these pieces by the spring manufacturer, except to punch the holes receiving the ends of the coil springs. Length is ready for his finished product and does not have to be revised.

#### Low-Carbon Billets Also Split

As all rails rolled either into new rails or into angles or other sections are necessarily of the high carbon content, and consequent great hardness, called for by the railroad specifications which the material has already passed, the product is necessarily of the same chemical composition and hardness. To meet orders for angles and other light sections where a softer material is demanded, and where consequently billets must be used as the raw material, these billets are purchased in the open market. However, a  $4 \times 4$ -in. billet, the smallest product of a blooming mill, costs less per ton than the smaller billets turned out by a continuous mill; but to work down a  $4 \times 4$ -in. billet into some of these smaller finished sections requires a great number of passes through the mill, and because of the small section it becomes probable that the finishing passes will be run when the material has lost much of its heat-given pliability.

Consequently an arrangement has been worked out for splitting a  $4 \times 4$ -in. billet into two equal sections by three passes through the mill. At the same time the width of section is reduced from 4 in. to 3 in., and the product of these three passes is approximately the same shape and about the same weight per foot as the head of a 110-lb. rail as split off in the splitting stand. From this point on, the same passes may be used as would be used for the head of the rail.

# Non-ferrous Metal Failures Under Stress

## Intercrystalline Cracks Due to Internal Stress — Effects of Corrosion and Chemical Influences — Prevention by Heat Treatment

(Special Correspondence)

LONDON, April 12.—The joint discussion organized by the Faraday Society, on the failure of metals, of which a first account was published in *THE IRON AGE*, April 28, was successful in demonstrating that many of the phenomena now being studied by metallurgists are common to the ferrous and nonferrous metals, and that nobody engaged in either of the two branches of the industry can afford to overlook the work which is being done in the other.

The papers presented for discussion which covered the nonferrous metals were well representative of the present state of knowledge on the subject of so-called "season-cracking," an objectionable term for which the expression "stress-cracking," as suggested by Moore and Beckinsale, should be consistently substituted.

### Failure of Lead Sheathing

The paper by L. Archbutt relates experiences of the failure of the lead sheathing of telegraph cables in service, the cracks being intercrystalline in character. Experiments were made by suspending pieces of sound lead sheathing with attached weights.

Preliminary tests showed that when pieces of the sheathing were pulled in a tensile testing machine, elongation commenced in the case of three different pieces under loads of 169 lb., 116 lb. and 126 lb. respectively. The breaking loads ranged from 260 lb. to 296 lb. and the elongation at fracture, measured on a length of 6 in., amounted to from 45 to 53 per cent. The first suspended test piece was weighted with 112 lb. After one week it had elongated about 8 per cent on a length of 30 in. and had developed surface markings showing the crystalline grain contours of the metal. Microscopical examination showed evidence of incipient intercrystalline fracture. A second, shorter test piece, weighted with 100 lb., was kept under careful observation and the elongation measured at intervals on a length of 6 in. In 14 days, surface markings had developed, and after 39 days the specimen fractured near to one end, after elongating 23 per cent between the test marks. The fractured end was cut off, opened out and etched. The crystals seemed to be all quite small and their boundaries irregular. Nothing could be made out by examination of the fractured edges.

Experiments were also conducted to show the effects of vibration in producing surface markings and ultimate disintegration, the fractures being partly intercrystalline and partly not. The general result of the author's observations was to support Dr. Rosenhain's theory of an amorphous intercrystalline film capable of viscous flow under stress leading to a gradual separation of the crystals.

### The Mechanism of Stress Cracking

Dr. W. H. Hatfield, of the Brown-Firth Research Laboratories, Sheffield, was responsible for a paper on "The Mechanism of Failure of Metals from Internal Stress," in which he offers arguments and evidence against Dr. Rosenhain's amorphous film theory both in ferrous and nonferrous metals. The author sums up his own views as follows:

Except in certain cases where selective chemical or physico-chemical action causes a separation of the remains of crystals from each other, fractures such as those under discussion are due to internal stresses introduced during processes of manufacture. Such stresses may not be high enough, initially, to produce rupture, but rupture occurs when weaknesses introduced by chemical or other influences lead to increased local concentration of stress or in some cases where changes in temperature in themselves lead to accentuation to the breaking stress. The work of the physicist has led, of late years, to a knowledge of the structure and properties of matter. Old conceptions have had to be discarded. Perhaps the physicist will be able in the near future to instruct the metallurgist as to the effect of plastic deforma-

tion upon the orientation of the atoms or molecules in metallic crystalline aggregates. He may also find it possible to visualize for us mechanism of the attractive force which makes it as difficult to separate different crystals as to break a single one, except where selective attack by certain reagents causes weakness by the destruction of the exteriors of the crystals.

### Season-Cracking During the War

Two papers dealt with intercrystalline failures from the point of view of munitions of war. That by Owen W. Ellis was entitled "Experiences of Season-Cracking During the Great War," and that by W. C. Hotherhall, "The Spontaneous Cracking of the Necks of Small Arm Cartridge Cases," both papers relating to the work of the Royal Ordnance Department, Woolwich, which inspected about 2,500,000 brass rods of varying sizes and shape, made to meet varying specifications.

Mr. Ellis states:

The phenomenon of what may be termed "wholesale" season-cracking of rods was first observed during the war period in 1914. It had previously been noted on many occasions, but failures having then had but little effect on output, were returned to manufacturers for their consideration. The defect was now noted in rods of high diameter which it was admitted had been subjected to somewhat drastic treatment in manufacture. The phenomenon, however, did not prove a really serious handicap to output until about the end of 1915, when quite appreciable quantities of 1.375 in. and 1.0625 in. rod showed the defect soon after receipt at the works. As a consequence large consignments of rod were rejected.

It may be of interest to note how the defect was discovered. From the beginning of the war, in pursuance of old practice, every rod of every consignment was examined for flaws. In a number of instances rods were discovered possessed of superficial cracks of the type usually associated with this trouble. These cracked rods were separated from the consignment and returned to the makers. No long time elapsed, however, before complaints from the shops of cracked rods reached those in control of the work of inspection. These complaints were a cause of considerable surprise, since it was felt by the examiners that their work was thus being called in question. However, re-examination of consignments of rods from which had already been removed all cracked bars for return to the makers revealed the presence of other defective material. Further, it was discovered that in practically every instance the defective material in any given consignment increased in amount from day to day. For example, of a lot of 227 rods it was found on first examination that no less than 202 were ruptured; these were removed for return to the makers. The following day it was discovered that of the remaining 25 rods 9 had failed by season-cracking. Ultimately the entire consignment became useless for service. Of another lot of 948 rods 54 were found to be cracked on first examination. The entire consignment became the subject of condemnation on account of season-cracking within quite a short period of the first inspection.

Experiments were carried out to obviate this evil, from which it was concluded

that a two hours' annealing at 200 deg. C. would be quite sufficient to remove all deleterious stress from such rod as was then being received into store. Since, however, the mechanical properties of the material were not affected in such a way as to render them outside the G specification by annealing at 400 deg. C., and since annealing at 350 deg. C. for about one-half an hour was found much the same in effect as the longer annealing at the lower temperature, this annealing temperature was employed in works practice and with success. As a result of this treatment many hundreds of rods, which otherwise would have failed by season-cracking, were passed into service. The success which attended the Ordnance Factories practice of low-temperature annealing was made known to certain of the manufacturers whose material had been the subject of investigation and it may here be worthy of note that the author knows that at least



one of the firms notified of the successful issue of the above experiments in practice employed and is employing, where necessary, low-temperature annealing with equally good results.

Mr. Hothersall details the processes of manufacture of small arm cartridge cases and the tests to investigate the cracking. He concludes:

The spontaneous cracking of the necks of small arm cartridge cases is due to the existence of stress in the neck of the case arising in some operation or operations subsequent to semi-annealing. It is probable that the most fruitful sources of such stress are the necking and bulleting operations, though the indenting operation may set up sufficient stress to determine the position of formation of the cracks.

The controlling factor which determines the amount of stress which becomes remanent in the brass during manufacture and thus becomes available for the formation of spontaneous cracks, is the hardness of the forward part of the wall of the case. The harder the brass, the greater the tendency for stresses to remain which may lead to spontaneous cracking.

It appears probable that mercury derived from the cap composition may exert an important and even a determining influence on the formation, within the service life of the cartridge, of spontaneous cracks in the neck of the case.

#### Prevention of Season-Cracking

An able paper by H. Moore and S. Beckinsale, of the research department, Woolwich, was entitled "The Prevention of Season Cracking in Brass by the Removal of Internal Stress" amplifies previous excellent work by the same authors. Their observations are briefly summarized as follows:

The rate of reduction of stress is fairly rapid at 200 deg. C. at first, but becomes very slow when the stress has been reduced to one-half to one-third its initial value and important stresses remain even after treatment for 24 hr. or longer.

As the temperature is raised the rate of reduction of stress increases, but shows the same characteristic of slowing down as the stress falls. At 300 deg. C. a very much shorter time is required to reduce the stress to a given figure than at 200 deg. C. and the remaining stress is much lower after a given time at the higher temperature, in brass of the same hardness.

The higher the initial stress, the higher is the remaining stress after a given treatment in brass of the same hardness, although the amount of stress removed is greater the higher the initial stress.

The higher the hardness of the brass, the lower is the remaining stress after a given treatment and for a given initial stress. In other words, the harder the brass the more rapidly is a given initial stress reduced at a given temperature.

A large reduction in the amount of stress is brought about by annealing conditions (temperature and time) which raise the hardness of cold-worked 70 : 30 brass, but treatments which result in some reduction of hardness are necessary to bring about complete removal of stress.

At temperatures in the range 200 to 300 deg. C. slight plastic flow occurs in cold-worked brass at low stresses. The amount of flow is greater as the temperature is higher, the stress greater and the time longer for which the stress is maintained.

The reduction of internal stress by low-temperature annealing is dependent on the plastic flow mentioned in previous paragraph.

This plastic flow involves a lowering of the elastic limit at the temperatures at which it occurs. This reduction of elastic limit is, however, not permanent provided that the treatment is applied for a time not exceeding one hour at 275 deg. C. or certain limiting times which are much longer at lower temperatures. The limit of proportionality and elastic limit are raised considerably by treatments which do not exceed these limits of temperature and time.

Other papers discussed were: "Internal Stresses in Brass Tubes," by R. H. N. Vaudrey and W. E. Ballard; "Chemical Influences in the Failure of Metals Under Stress," by Professor C. H. Desch; "Internal Stresses in Relation to Microstructure," by J. C. W. Humphrey, and "Note on Phosphor Bronze Bars," by John Arnott.

#### Discussion

Professor Desch emphasized the importance of the selective influence of chemical action but thought it was evident that such action could not be a prime cause of the failures but could only reveal existing weakness.

Harold Moore agreed entirely with Dr. Rosenhain's amorphous film theory, with one or two minor reserva-

tions. There was an abundant body of evidence to show that season cracking was due to a combination of internal stress and some other agency such as corrosion. Referring to Dr. Rosenhain's statement that the time effect was an essential feature, he thought in many cases there was a time effect under chemical action. It must be admitted that there were cases, e.g. in lead sheathing in which cracking took place in the apparent absence of chemical action. He agreed with Dr. Rosenhain that a general explanation was desirable for all intercrystalline fractures, but questioned if one explanation would cover all cases. He could not agree with Dr. Hatfield's objections to the amorphous film theory, but thought that in steel the intercrystalline material was probably too hard to admit of viscous flow.

Sir Alfred Ewing said that on crystallographic grounds an amorphous layer between the crystals was inevitable, and this conclusion was entirely supported by the various modes of fracture of metals. At low temperatures fracture was usually due to slip which could only take place in the crystals themselves, while at higher temperatures the amorphous layer began to exhibit more fluidity and fractures consequently became intercrystalline.

Dr. G. D. Bengough confirmed the relation between temperature and the path of the fracture through or between the crystals, but thought the case of season cracking rather different. He dealt with the effects of the products of corrosion facilitating further corrosion, for example in the case of copper in chloride solutions. This would promote season cracking, apart from viscous flow of the amorphous material which Dr. Rosenhain contended disturbed the products of corrosion which would otherwise prevent further chemical action.

Col. N. T. Belaiew referred to burnt steel, in which the boundaries of the crystals were far more susceptible to the corrosive influence of oxygen than the crystals themselves. In some specimens the crystals could be completely separated.

Dr. R. Seligman agreed with Dr. Rosenhain that in light alloys intercrystalline fracture could occur without corrosive influences, but differed from him in stating that all experiments showed that corrosion was promoted by the products.

Sir Gerard Muntz said the amount of season cracking in proportion to sound material was  $\frac{1}{2}$  per cent or under, and could be obviated by putting just the right amount of work on the metal and by low temperature annealing.

R. H. N. Vaudrey, in his reply, pointed out that there was no need for going to the expense of low temperature annealing when sound tubes could be turned out by correct mechanical treatment.

#### Simonds Economic Prize Awards

The prizes offered by Alvan T. Simonds, president Simonds Saw Mfg. Co., Fitchburg, Mass., to encourage the study of economics in high schools and normal schools, of \$1,000 and \$500 for the two best essays on the subject "Present Economic Conditions and the Teachings of Adam Smith in the Wealth of Nations," have been awarded by the judges as follows: First prize of \$1,000 to David Koch, High School of Commerce, New York; second prize of \$500 to Aloysius Thiemann, Reedsburg High School, Reedsburg, Wis. Essays were submitted from every section of the United States and from Canada.

#### Internal Revenue Revision

WASHINGTON, May 10.—Hearings relating to internal revenue revision were begun yesterday before the Senate Committee on Finance. The committee is hearing first the proponents and opponents of the sales tax, and in order to avoid duplication of arguments, persons having the same problems to present will be requested to agree upon one representative to submit them. It also is urged that witnesses endeavor to prepare their statements in such form that their presentation will not require more than 30 minutes.

## Horizontal Boring and Drilling Machine

The Jones No. 3 horizontal drilling machine shown in the accompanying illustration and the No. 3 horizontal boring and drilling machine developed from it are being marketed by the Jones Machine Tool Works, Philadelphia.

The horizontal drilling machine is made standard, as shown, or portable, in which case the base part for table is omitted. The drive is by a  $3\frac{1}{2}$ -hp. variable speed motor with six change speeds through gearing located in the base of the column and flood lubricated. The change speed levers are located on the side of the column and can be set to give spindle speeds of 20, 50, 75, 200, 450 and 700 r.p.m. The power from the change speed gearing is transmitted to the vertical shaft



Jones No. 3 Horizontal Drilling Machine. The base part for the table is omitted in the portable machine. Six spindle speeds are obtainable from 20 to 700 r.p.m., and the feeds are 5-15-25 thousandths per revolution of the spindle

through miter gears and then through miter gears and spur gears to the spindle.

The spindle is 3 in. in diameter and is bored to take a No. 5 Morse taper shank. It has a traverse of 20 in. and is operated by the hand wheel through a steel screw and bronze nut back of the hand wheel. The friction clutch for the feed spindle is supported in three bronze bearings, two in the saddle and one in the slide. Thrust of the spindle is taken care of by large thrust ball bearings.

The feeds are 5-15-25 thousandths per revolution of the spindle and are thrown in by friction clutch. The forward feed is by hand and power; the reverse by hand feed only. The gears are of the sliding type and are operated by a lever on front of the saddle. The saddle is counterbalanced and has a vertical traverse of 30 in., the horizontal traverse of the column being also 30 in. Both saddle and column are hand operated but can be arranged for quick traverse if desired. The table is 30 in. square and can be tilted in either direction 45 deg. from the horizontal.

The overall dimensions are 92 x 68 in. and 104 in. high. The weight is 9500 lb.

The No. 3 horizontal boring and drilling machine is similar to the machine described above except that the base is lengthened and on it the outer support column and runway for supporting the boring bar and facing head when boring cylinders, etc., is mounted. A universal rotary table is made to replace the table shown, the table tilting in one direction only, from the horizontal to the vertical 90 deg. The table top is 36 x 48 in., and can be rotated in either direction when locked in the tilting position desired. The spindle feed is power, forward and reverse in this machine. The weight is 12,500 lb.

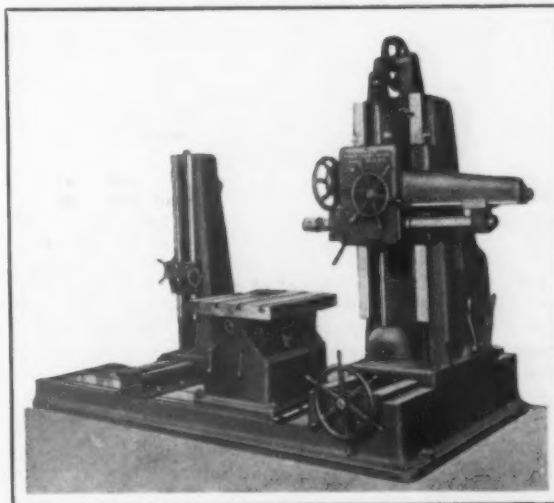
## Foundry Accidents Prevented

Statistics prove hand labor to be 40 per cent more prolific of accidents than machine labor, according to William H. Steele in *National Safety News*. In the foundry of the Locomotive Stoker Co., Pittsburgh, where all molding is done by machines, even to complicated 1400-lb. castings for the duplex stoker, only eight injuries occurred in January, and only one of these required a surgeon's attention. Pig iron and coke are lifted to the charging floor by elevator equipped with safety devices. Iron is tapped from the cupolas by one man only; he does nothing but that and knows how to do it safely. All men connected with pouring wear goggles, asbestos leggings and congress shoes. Chipping and grinding are done in a separate room, and goggles are required. Neither a fatal accident nor one resulting in permanent disability has occurred, it is stated, in the five years these regulations have been in force.

## Cleveland-Cliffs Iron Co.'s Anniversary

The Cleveland-Cliffs Iron Co., Cleveland, has published a very handsome volume giving a review of the company's development and resources, in commemoration of its seventieth anniversary. The history of this company is so closely connected with that of the iron industry in the Lake Superior region that it is both important and interesting.

The illustrations include halftone engravings of the monument erected by the Jackson Mining Co. to mark the discovery of iron ore in the Lake Superior region, the ore being found under the roots of a fallen pine tree, in June, 1845, by Marji Gesick, a chief of the Chippewa Tribe of Indians; the first charcoal blast furnace of the Lake Superior region, built in 1857-8 by



Horizontal Boring and Drilling Machine Developed from the Jones No. 3 Horizontal Drilling Machine. A universal rotary tilting table is made to replace the table shown

the Pioneer Iron Co.; the Jackson mine pit in 1860; monument erected in 1904 to mark the spot where the first forge on Lake Superior was built; numerous halftones showing mines, mining operations, lumbering, welfare work, Otis Steel Co. blast furnaces, Cleveland, and the partly completed stack of the Trumbull-Cliffs Furnace Co., Warren, Ohio.

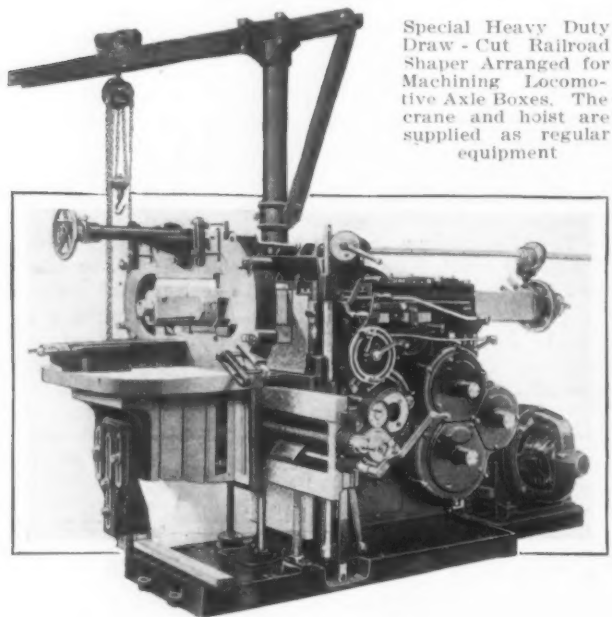
"The Story of a Steel Bar" is the subject of an article published in the April number of *Brazilian Business*, an official monthly publication of the American Chamber of Commerce for Brazil. The author is J. D. W. Snowden, representative at Rio de Janeiro of the American Steel Export Co., New York. Mr. Snowden, who has had long experience in the steel business, gives helpful information in regard to mill methods and explains some matters which are not always clear, especially to buyers in foreign lands.



### Special Railroad Shaper

The special heavy duty draw-cut shaper recently brought out by the Morton Mfg. Co., Muskegon Heights, Mich., although a multi-duty machine, is intended particularly for railroad shop work in the rapid production of driving boxes, crown brasses, shoes and wedges, and connecting rod brasses.

The machine has a working stroke of 36 in. The maximum distance from ram to top of knee is 24 in.; to top of vise, 14½ in. to floor, 50 in., and to top of table 21½ in. The minimum distance from ram to top of table is 3½ in. The maximum table movement is 40 in. horizontally and 18 in. vertically. The working surface of the table is 38x30 in., and that of the knee 24x24 in. at the top and 18x18 at the side. The feed per stroke of ram is 0.01 to 0.5 horizontal and 0.005 to 0.25 vertical. The power required is 10 hp. for belt drive and for direct current variable speed motor, and 15 hp. for alternating current variable speed motor. The floor space



Special Heavy Duty Draw-Cut Railroad Shaper Arranged for Machining Locomotive Axle Boxes. The crane and hoist are supplied as regular equipment

required is 10 ft. x 16 ft. 8 in. and net weight of belt driven machine is 13,000 lb.

Use of the draw cut principle in this design is said to permit of deep, smooth and accurate cuts. The makers claim that for work within its range the machine will remove metal as fast and as accurately as a planer, consuming one-third less power and occupying but half the floor space. Convenience of operation, simplicity of control and ease in changing the machine from one class of work to another are other factors mentioned in its favor. The features of construction are outlined in what follows.

The column is provided with square rail bearings and all running bearings are fitted into bored holes and held in position by bolts. The cross rail is raised and lowered by nuts and screws and a counterbalance is used to offset the weight of the special attachments. The table is "T" slotted on two sides, the upper forming the bolting surface for vise, top table and attachments, the other taking an angular extension for binding of driving boxes when machining the shoe and wedge fit. The vise has a sliding jaw of special metal with steel facing. Two screws control its motion. The stationary jaw has parallel planed ends which can be set against the adjustable back-bearing.

The adjustable back-bearing is mounted on a post bolted to the cross-rail and is intended to transfer the thrust of the cut to the column of the machine. An auxiliary back-bearing is provided for the same purpose when using the driving box attachment. Both may be swung out of the way when not in use.

The ram is of steel, cast hollow, and has a bearing surface on all four sides throughout the column. A bronze strip, inserted centrally in the rack, provides a continuous bearing surface for the bottom side of the ram. Wear can be taken up at the sides by adjusting

taper gibs and at the top, by lowering the ram cap. The ram is bored at each end to receive an arbor which is a hollow steel forging having close fitting journals at each end and, revolving in the ram, it gives the circular feed to the rotating head for cutting the crown fit in driving boxes.

The shaper head is of steel and can be clamped at any angle. The sliding part of the head has the usual V joint, but also has adjustable side clamps with square rail bearings to insure rigidity. The swivel or tool block is threaded and fitted into the slide.

The reciprocating motion of the ram is obtained by compound disk friction clutches and a shifting bar and revolving cam reverses the clutch for the return stroke. The machine can be started or stopped by a clutch independent of the driving motor, and the ram may be moved as little as 1/16 in. at a time.

The stroke is adjusted by tappets on a circular disk and can be changed while the machine is in operation. A rapid power traverse is provided for the cross-rail and the saddle. The feed is relieved automatically, and changing the horizontal or vertical feed is by moving tappets on a disk. Rotary feed for the arbor is from the automatic feed by means of a gear and ratchet working in connection with a vertical rack. Splash lubrication is used for the clutches and shaft bearings which are subjected to heavy strains. When the machine is running, oil is pumped to the ram.

The crane and hoist are used for handling the vise and attachments, as well as for heavy work. The hoist has two speeds. Fixtures for use on railroad castings can be provided, a double chuck being furnished for driving boxes. Other fixtures furnished include a rotating head and a double cutting head.

### Creeper-Equipped Path Digging Wagon Loader

A new development in the wagon loader field is shown in the accompanying illustration of the creeper-equipped path-digging wagon loader recently brought out by the George Haiss Mfg. Co., Inc., 141st Street and Rider Avenue, New York. It is heavier and stronger than the wheel equipped machine manufactured by the same company.

The creepers are 8 ft. long overall and 6 ft. long between centers. They are of cast steel, 10 in. wide



Creeper-Equipped Path Digging Wagon Loader

and of the self-cleaning type, overlapping to prevent dirt and foreign matter from clogging the sprockets. The frame support has a three point suspension. The motor used is a 15-hp. General Electric or Westinghouse. The engine is a Waukesha heavy tractor type, developing 37 hp. at 1000 r.p.m. and is connected to the countershaft by means of a Baldwin chain and a gear driving the elevator and also the wagon loader.

The loader has a forward speed of 75 ft. per min., reverse speed of 45 ft. and a crowding speed of 22 ft. The head shaft is of chrome nickel steel supported by steel take up bearings which can be adjusted to take up slack in the chain. The overall height of the machine is 14 ft. The height under the chute is 8 ft. 6 in., and when the elevator is collapsed the overall height is 9 ft.



# Another Direct Process for Steel Making

Mixture Contained in a Retort and Charged Into a Reverberatory Furnace—A Melting Compartment in Which Steel Is Produced—Methods of the Direct Steel Process Co., Inc.

BY HERBERT LANG

THE direct steel process which was patented in the United States by the writer in 1920, and for which foreign patents are pending, is designed to produce steel directly from iron ore without the necessity of making pig iron as an intermediate step. It consists essentially in the reduction of the ore to iron sponge by the agency of ordinary carbonaceous fuels, and the melting of the sponge immediately on its formation, producing steel of a predetermined composition, the process being continuous. It differs from previously proposed methods in that the material is not allowed to cool from the beginning to the end of the operation; nor is the sponge exposed at any time to the oxidizing effect of the air or the furnace gases. Those who have experimented in the manufacture of iron sponge will realize the importance of excluding air and steam from the heated sponge, which absorbs oxygen with the greatest avidity. It is in fact this propensity which has heretofore rendered nugatory all attempts to manufacture solid iron from it.

## Materials and Method

In carrying out this process pulverized iron ore is taken and thoroughly mixed with carbonaceous fuel, either liquid or solid, and placed within metallic retorts. Any fuel will answer, provided that it will leave a residue of fixed carbon on heating. The value of the different fuels, as powdered coal and coke (screenings), charcoal, the residues of gas works and oil refineries, etc., has been determined on a working scale and as applied to the different ores of iron, and very interesting facts have been brought out. The proportion of fuel required varies inversely as its fixed carbon when applied to the reduction of magnetic ore, on which the volatile constituents seem to have little effect. But limonite and to a less degree hematite are amenable to the action of even quite volatile gases.

Probably these experiments have brought out the differences in reducibility of the various ores of iron (and incidentally those of manganese) more precisely than any previously carried out. These and some purely scientific considerations may be disregarded for the present and we shall proceed to say that having mixed the ore with fuel, whose fixed carbon may average 20 per cent of the weight of the metallic iron in the ore, the mixture, to which the necessary fluxes are also added, is placed in a retort, which may be either spherical or cylindrical in order to roll, and charged into the cooler end of a furnace, in which it is brought up to a bright red heat and kept so for some hours, during which the ore is deoxidized, the iron being left in a powdery condition or at the highest practicable heat sintered into a porous mass about as coherent as a half-burnt brick.

The furnace in which the foregoing process is carried on is a very long reverberatory, similar to the heating furnaces used in rolling mills. It has preferably a sloping hearth to facilitate the travel of the shells (retorts) which cover its hearth and roll parallel to each other from the cold to the hot end. It is heated partly by an independent fire at the hot end, but mainly by the combustion of the evolved gases from inside the shells, which consist largely of carbon monoxide. Thus there is no loss of fuel in this process, except by unavoidable radiation from the long furnace.

The reactions being complete, the ore thoroughly reduced, and the shell with its contents at the highest permissible temperature, a door which separates the reducing furnace from a melting compartment is opened and the shell allowed to roll into the latter,

where it, with its contents, is melted down, producing liquid steel.

## Six to Eight Hours for Reduction

By the integral construction of the two furnaces, making them practically one, and by other devices, the inventor has succeeded in making the process continuous, and to a certain degree automatic. There is no manual labor connected with either the charging or discharging of the reduction furnace. As for the shells, they are cast from the molten metal from the melting furnace, and weigh about one-third as much as the iron they inclose. It should be mentioned that apertures are left in them for the escape of the gases, which would otherwise tend to rupture them. Experience shows that from six to eight hours' exposure to gradually increasing heat, is required for the reduction of the contents of a shell holding 300 lb. of iron, the ore being magnetite. There must be, therefore, a large number constantly under treatment, and in the works projected in California it is the intention to use furnaces having a capacity of 100 shells or more at any time. The shells lie parallel and in contact during their passage through the furnace, and receive the heat produced by the combustion of the gases which issue from their interior, as well as that due to the fire at the end of the furnace.

## Departures from Ordinary Practice

There is nothing novel about the melting compartment, a common open hearth or electric furnace, in which the steel collects and is duly tapped or poured out. It will be readily understood that the melting takes place rapidly, since the materials are already nearly at the fusing point when they enter the furnace, thus bringing about a considerable economy of time and fuel, and preventing undue wear and tear. Attention is called to the difference between this and ordinary practice. In the new method the materials are charged hot and almost instantaneously; in the older they are charged cold, and in installments, occupying often an hour or more for a single charge, during which time the side doors are open, causing great loss of time and heat. Further, the temperature of the interior oscillates, with consequent damage to brickwork. These drawbacks are avoided in the working of the new process, though it is fair to say that it is not intended to use the melting compartment for refining the steel. An auxiliary furnace will be used for that purpose, the metal being tapped into a ladle, transferred to the refining furnace, and there treated with the additions and brought to the proper composition and temperature for casting. It is evident that this work could not well be performed in the primary furnace, since the reduction furnace requires to be run at a regular pace in order to do its best work, and could not by any means be allowed to wait upon the melting department. It is considered that an allowance of one square foot of open-hearth area would suffice for the melting of one ton of steel in 24 hours under these conditions, but in order to meet the extra work imposed by the occasional presence of unreduced ferrous oxide in the retorts, this allowance will be increased to  $1\frac{1}{2}$  sq. ft. of hearth area in the works to be constructed. The melting furnace will have a total hearth area of 300 sq. ft. to correspond with the 200 tons of expected daily capacity. This plant will be built by the Direct Steel Process Co., Inc., at Santa Cruz, on the Bay of Monterey in California. The metal produced thus far in quantities up to a ton or two at a heat, has proved fully equal in quality to corresponding grades of commercial steel, and ranges in compo-

sition from soft steel of point 20, up to the hardest kinds with one per cent, and even as high as pig iron, with three or four per cent. The process, therefore, is easily controllable.

#### Saving of Electric Current

It will be seen that this invention is an important improvement on electric steelmaking, since it substitutes during the process of reduction the much cheaper heat of ordinary fuels for the costly heat of the electric current, only employing the latter for the final melting. Thus, the consumption of current is brought down to less than one-fifth that heretofore employed. If to this consideration we add the superior control which is had over the composition of the product, it will be believed that the new process has a great field of future usefulness.

## PIG IRON FROM PURPLE ORE

### French Process for Converting Pyrites Cinders in Electric Furnaces

A description of the manufacture of pig iron from pyrites cinders or "blue billy" by a French electric process has appeared in *Technique Moderne*, Paris, by Marcel Guedras. An abstract published by the London *Iron and Coal Trades Review* is in part as follows:

The average composition of the pyrites cinders is  $\text{SiO}_2$ , 3 per cent;  $\text{FeO}$  (66 per cent iron), 94 per cent; S, 2.75 to 3.50 per cent. In the blast furnace the use of pyrites is limited to a maximum of 10 per cent of the charge. It has been possible to increase this percentage after scorifying by a German process which consumes a relatively great amount of fine coke or coal but the porous cinders obtained still contain 0.45 to 0.50 per cent sulphur. A more rational process for treatment is by reduction in the electric furnace, a practical and advantageous process when the richness of the cinders in iron and the small content of silica are considered.

An important point, which formerly has not been duly considered by metallurgists, is the physical state of the roasted pyrites. This pulverulent material is spongy and absorbs great quantities of water. Often pyrites cinders, after standing some time, contain as high as 20 to 22 per cent of moisture.

To obtain a normal and regular treatment of pyrites cinders it is necessary first to dehydrate them completely, combining this operation with a partial desulphurization to be later completed by chemical reactions in the reduction furnace. This point constitutes one of the principal specifications of the Guedras-Duina process, M. Duina being a collaborator.

Desulphurization and dehydration are to be followed by agglomeration, because it is necessary that the cinders shall not be charged into the electric furnace in a pulverulent state since the fine material would partially escape reduction and be lost with the slag. The combined operation of dehydration, desulphurization and agglomeration take place in a gas-heated rotary kiln. The temperature required is from 1000 to 1200 deg. C.

Pyrites cinders with a sulphur content of 2 to 3 per cent, when charged into the furnace, leave the furnace with a sulphur content of 0.10 to 0.20 per cent; the nodules are strong but highly permeable to gases, a useful quality for the subsequent reducing operation. Reduction takes place in an open-top electric furnace, but it can also be done in an electric blast furnace when the gases are to be used.

The desulphurization reactions which take place during reduction are:

A reaction which is proper to all electric furnaces, namely, the action of lime-carbon with the formation of calcium carbide.

Calcium chloride is also added to the charge which intensifies the desulphurization of the molten bath.

Adding manganiferous minerals or manganiferous slag to

It being considered advisable to bring the new process into competition with existing methods, to the end that its merits may sooner be recognized, the company contemplates the erection, as soon as practicable, of a plant of larger capacity than the one on which it is now engaged, in some center of steel production, as Pittsburgh or Birmingham. Under ordinary circumstances the direct process ought to compete successfully with plants using the customary methods, since it can procure steel as cheaply as it—or they—can make pig iron. But since it can profitably utilize fine grained materials, such as coal and coke screenings, and ore too fine to be fed into the blast furnace, it would have in that respect a considerable additional advantage in some localities. Perhaps its ability to utilize the flue dust of the blast furnace may recommend the process to even the steel masters of the East.

the charge for the introduction of manganese into the pig iron is also of help in desulphurization.

The technique of this process is based upon two distinct ideas:

Absolute necessity to eliminate the moisture completely in a preliminary roast.

Utilization of the desulphurization action of the electric furnace which is increased by the presence of a calculated amount of calcium chloride in the molten bath.

The reducing agent used may be coke, charcoal or a mixture of charcoal and anthracite.

To produce a metric ton (1000 kg.) of pig iron, 380 to 400 kg. of coke is required which corresponds to 218 kg. of carbon plus what is needed for carburization. The actual consumption of electric energy is, on the average, 2200 kw-hr; the furnace has a power factor of 60, which is low.

Pig iron obtained by this process analyzes 0.001 to 0.03 per cent sulphur. The consumption of electrodes is 14 kg. per metric ton of pig iron produced. An industrial plant of 3000 kw. can produce 11,000 metric tons of pig iron per year, and requires 16,060 tons of pyrites cinders.

### Takes Over Eclair Machine Tool Co.

The Reinforced Switch & Mfg. Co., recently incorporated under the laws of Pennsylvania, with a capital of \$50,000, has taken over the Eclair Machine Tool Co., dies and tools, with a plant at Ambridge, Pa., and will not only continue the products of that company, but will manufacture a patented electrical knife switch and fuse clip. The clip produced by this company differs from others in that it is reinforced by a steel spring which keeps the upper jaws from spreading, thus insuring a constant pressure against the knife-blade or fuse and a perfect contact, which it is claimed eliminates heating and saves the fuses. The officers of the company are W. J. Keist, president; H. H. Schaefer, vice-president; Chas. Dunbar, treasurer, and W. J. Schaeffer, secretary.

### Many Claims Settled

WASHINGTON, May 10.—Only three claims, out of a total of 1203, and 30 appeals remain to be considered by the War Minerals Relief Commission. Awards of \$3,358,460 were made up to April 22 at an expense of \$376,824, as compared with a total expense of \$372,000 up to April 9. The total appropriation was \$8,500,000. A number of bills have been introduced at the present session of Congress to liberalize provisions of the War Minerals Relief act, and if they are passed many cases would be reopened and the work of the commission and the proposed Court of Claims would be indefinitely extended at great expense to the Government, it is claimed.

Piling a stock of coils of wire so that the coils interlock, instead of lying flat on each other accomplishes two things: it prevents accidents from falling coils; it largely increases the storage capacity of a given space.



# Steel Corporation Wage Reduction Approved

Trade Receives Action with Satisfaction and Workmen Will Not Object—Threat of Organization by New Union Committee Causes No Excitement

PITTSBURGH, May 9.—So general was the expectation that the Steel Corporation would make a wage reduction that the actual announcement of the change hardly created a ripple here. The cut, however, puts the corporation workmen on the same plane as those of the independent manufacturers and since all manufacturers are observing the same quotations, there is a stability to the situation which previously had been lacking and probably would have been so long as the independents had any advantage over the corporation in the matter of labor costs, since there was the possibility that the latter might pass this advantage, in whole or in part, along to the buyers.

Final meeting by the corporation of the wage cuts made about two months ago by the independents is looked upon with much satisfaction in the trade, not only because it removes a possible cause of annoyance to the independents, who would have some trouble in holding together their working organizations if the corporation scales remained above those of the independents, but also because of the far-reaching effect wage action by the corporation usually has. It is expected now, as the corporation has acted, that an adjustment of the railroad wage controversy, upon which hinges a reduction in railroad freight, will move forward more speedily and that the building trade unions will be more amenable to suggestions that they must expect to bear a share of the industrial readjustment. Labor organizations, which have been holding out against wage revisions, if they have not urged high rents as the reason for their refusal to accept a cut, invariably have pointed out that the Steel Corporation had not reduced wages.

The number of workmen affected by the Steel Corporation cut is estimated at from 50,000 to 55,000. This, however, is only about 50 per cent of the normal number of men employed in the corporation plants in this district and the low total now affected is explained by the present reduced operations of the plants. No trouble is expected to develop among the men. With the independent companies paying no higher rates than the corporation, there is no advantage for the men in changing places, and moreover, the corporation subsidiaries are offering as much work as any of the independents and more than a good many can provide today. The fact that the corporation maintained the Feb. 1, 1920, scale at least two months longer than did the independent companies and has not abandoned the basic 8-hr. day, with extra pay for overtime, as some other companies did, also may be advanced as reasons why the corporation workmen are content to accept the cut in wages.

## Union Organization

Nobody seems to be paying much attention to the steel plant organization movement, which is scheduled to get under way next month under the auspices of the new American Federation of Labor committee, headed by Michael F. Tighe, president of the Amalgamated Association of Iron, Steel and Tin Workers. It is hardly expected that plant operations will be much better in June than they are now and under the circumstances it is hard to figure how there can be any material improvement in the employment situation. With the likelihood of an ample supply of labor, an effort to unionize the mills would be seriously hampered, for there is no conceivable argument that the labor leaders could present that would convince unorganized men that their chances of employment would be helped by being enrolled in the unions. Employment depends upon

orders and just now orders are not numerous. Working conditions do not provide the labor leaders with a talking point, and it is pretty generally conceded that the Steel Corporation has been eminently fair with its workmen. The Steel Corporation is mentioned because the unionization movement is to be centered upon the Steel Corporation; that is no secret, for it is realized that until the corporation recognizes organized labor there is not much chance for success in the independent plants. It is not surprising, therefore, that so little attention is being paid the threatened drive by the labor unions on the steel plants.

## Cleveland Wage Reduction

Cleveland foundries making heavy castings placed a wage reduction of from 90c. to 75c. per hour in effect May 9. When the agreement between the founders' and molders' unions expired Jan. 1, the foundries offered to make a new agreement on the basis of 75c. an hour, but the molders refused to accept the reduction and foundries continued to operate at the old wage scale, running at only about 25 per cent of capacity. The foundries finally decided to make the reduction and did so without negotiating with the union. Most of the light gray iron foundries in Cleveland are operating on a piece-work basis and have made a reduction in piece-work rates. Those that are paying hourly rates are expected to follow the heavy foundries in making a wage cut.

## Belated Molders' Strike in Chicago

CHICAGO, May 7.—After working four days under the wages offered them by local jobbing foundries, the molders held a meeting Thursday night, May 5, and decided to strike for their original demand of 90c. an hour. The agreement between the molders and foundries, which expired on April 30, provided for a wage of \$1.05 an hour, or \$8.40 a day for molders, and the new rate which the employers agreed to pay, beginning May 1, was 85c. an hour. Approximately 40 union jobbing foundries in this city are affected by the walk-out. Inasmuch as the work which foundries have on hand is light, suspension of operations does not seriously affect them. They propose to remain idle until the men see fit to accept their terms.

## Government Will Not Interfere

WASHINGTON, May 10.—Published reports that Secretary of Labor Davis and Secretary of Commerce Hoover had been requested to call a conference with representatives of the United States Steel Corporation and its employees to pass upon the reduction in wages announced by the Steel Corporation are unfounded. The reports grew out of a statement credited to Secretary Morrison of the American Federation of Labor attacking the Steel Corporation for making the reduction and indicating that it gave reason for expediting plans to "organize" the steel industry employees. Secretary Hoover, after denying that a conference was contemplated or that the matter had even been called to his attention, said the Government has nothing to do with the reduction of wages, and that when it does participate in such a question, its aim is to bring about an agreement.



## ALABAMA CO.'S IMPROVEMENTS

Changes in Design and Lines of No. 1 Blast Furnace—Labor Reduced from 305 to 160 Men

BY H. R. STUYVESANT\*

For the past year the Alabama Co. has been steadily improving its blast furnace plant at Gadsden, Ala., near Birmingham. No. 1 furnace was of old design with petticoat, tuyere breast and hearth jacket spray cooled with a ditch encircling the hearth jacket and extending down to the level of the tapping hole. Cooling is not efficiently effected with this type of hearth, especially below the ditch. Practice shows that breakouts with this type of jacket are frequent. The breakout assumes more serious consequence on account of the jacket being surrounded by a ditch containing water. The iron coming in contact with the water causes violent explosions and heavy concussions with results which are disastrous as well as expensive. This danger has been so repeatedly demonstrated throughout the country that it was decided to eliminate the ditch entirely and abandon the idea of surface cooling.

No. 1 furnace was blown out Oct. 19, 1920, and the work of dismantling was immediately started. The shell was in good condition, as were the foundation, columns and base plates. After removing the lining the old iron work of hearth and bosh was dismantled and five feet of iron, running silicon, 1.25; sulphur, 0.045; manganese, 0.49, and phosphorus, 1.11 per cent was removed from the hearth, and the bottom built up with five courses of standard 18 x 9 x 4½ in. bottom blocks. No leveling was required to furnace shell and mantle as they were found to be correct.

Both on account of the inferior design of hearth and bosh construction and on account of changing the lines of the furnace, entirely new iron and steel work was placed beneath the mantle.

The hearth section is of 1½-in. rolled steel plate, butt strapped, riveted both externally and internally. Cast iron cooling plates, 4 in. in thickness, with two U tubes of 1½-in. extra heavy pipe cast in them, are placed continuous about the entire circuit of the hearth jacket extending to the bottom of the rolled steel hearth jacket. A small packing space was essential between the outside hearth jacket and the cooling plates, on account of the rivet heads on the steel jacket and the space between the butt straps. This space was packed tightly with a dry mixture of granulated slag and loam, the brick being laid solid against the cooling plates. Fire brick was built solid from outside bottom of hearth jacket to the ground level, extending to center line of columns encircling the entire hearth jacket. This aids to further protection in case of possible failure of the high quality brickwork, workmanship, effective water cooling and mechanical strength. Enough clearance was provided for expansion to eliminate possible chance

of side thrusts on the columns. Only a small run off trough for occasional waste water is provided.

To strengthen the bosh at the tuyere section a 1½-in. rolled steel tuyere breast was used, being supported by the hearth cooling plates, holes being cut in the cooler and plate openings, as the most critical actions and highest temperatures are around this area. Strengthening at this section aids in the eliminating of so-called cinder breakouts, with which most every furnaceman is familiar, especially where no protection to this section is provided except bosh bands. Three rows of cooling plates and 10 tuyeres afford efficient cooling to this section.

The bosh bands, seven in number, are of 1½-in. rolled steel. In order to prevent slipping of these bands, forged steel bosh band supports were used which link the entire bosh band section together. The top band support is hung from the mantle ring while the lower band support rests on the tuyere breast, dividing the weight of the bands between the mantle ring and the tuyere breast. Cooling is effected in the bosh section by seven rows of bronze cooling plates, 20 in each row. The bronze cooling plates were all arched over.

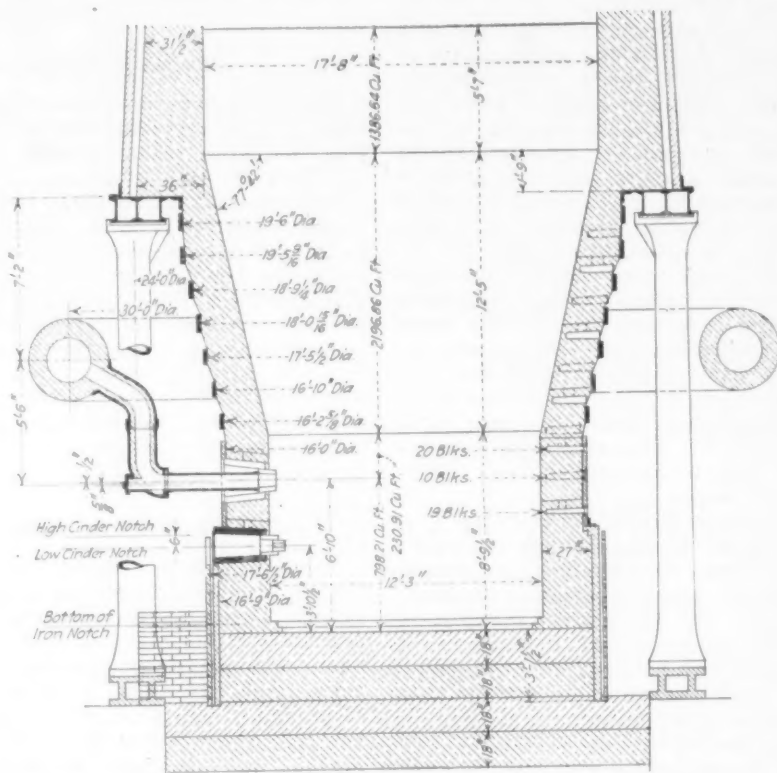
The cubical capacity of the furnace was slightly increased. The bosh was lowered and made steeper. The hearth diameter was increased. The batter of the inwall was increased, giving the furnace approximately 78 deg. bosh angle as compared with the pre-existing bosh angle of 74 deg. The top, which is of the Brown type, but of an old design, was improved. The distribution was corrected by placing an extra receiving hopper with a throat extension between the skip and the revolving chute,

thus causing the material to pass centrally through the throat of the new receiving hopper on to the revolving chute, which now distributes the material on the big bell uniformly, irrespective of the position of the chute.

Improvements in design, lines and distribution of No. 1 stack assure a much better and more economical working furnace, eliminating disastrous explosions from possible breakouts, and assures an increased production which necessarily reduces the operating cost.

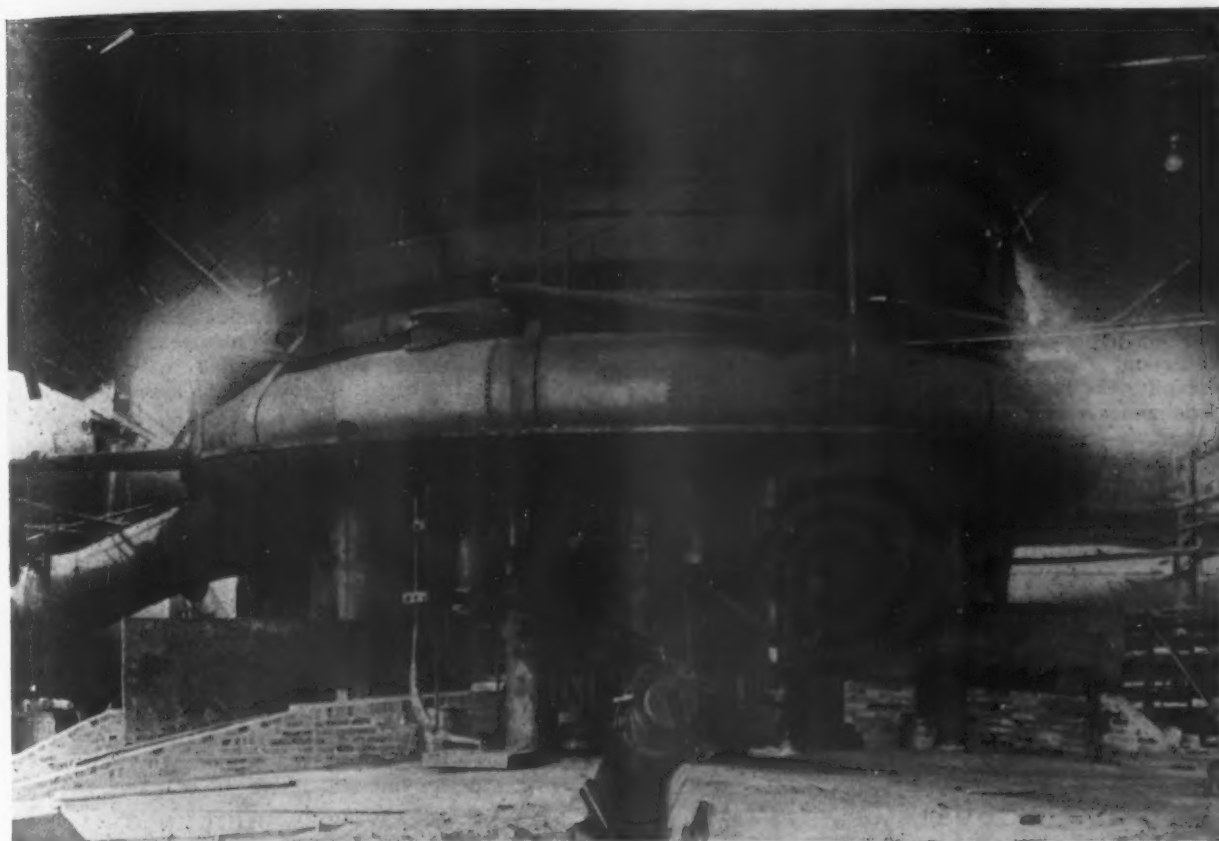
The P. J. Brown Construction Co., of Cleveland, contracted for the brick work. The Harbison Walker Refractories Co. furnished the brick for lining and the Variety Iron Works, Cleveland, fabricated the hearth jacket, tuyere breast and bosh bands. The construction was done by the regular mechanical force. The designing and construction were in charge of the writer. Work on the furnace was completed Jan. 1, 1921.

To insure a continuous run on both furnaces, eliminating the necessity of depending on the railroads to deliver raw materials and also as a further protection against mine and railroad troubles, a new permanent storage trestle was built and an ample supply of raw material stored for emergency needs. The trestle is designed so as to chute the materials to the side, eliminating the evil of filling the space under the trestle, this evil having a marked tendency to rot away the trestle,



Details of No. 1 Blast Furnace of the Alabama Co. After the Changes Had Been Made

\*General superintendent blast furnace department, the Alabama Co., Gadsden, Ala.



The Two Cinder Notches, Mud Gun, Dogs and Splasher of No. 1 Furnace Are Operated Mechanically by Steam Cylinders. The operator's station is located at the side of the cast house

and requiring excess labor in the recovery of materials. With the chute design of the new trestle the recovery of all material is available with locomotive cranes.

Two 20-ton Link-Belt locomotive cranes are employed. No. 1 crane is equipped with a 36-in. Ohio lifting magnet and is used in the iron yard. No. 2 crane is equipped with a clam shell bucket and is used in general for handling ore, coke, stone, sand, ashes, cinder, etc.

To insure a clean and uniform pig both physically and chemically, together with doing away with the evils inherent in sand cast pig iron, a pig casting machine was installed.

In order to increase the efficiency of the locomotives and the locomotive cranes, assuring coaling up in the shortest possible time, a new coal storage with chutes

was built. A railroad track was extended into the boiler house in order that coal could be unloaded from cars directly at the point of use, also so that ashes could be loaded directly into cars. All material storage, including sand, clay, coke, braize, lime, fire-brick, etc., were located at point of use, thereby eliminating the necessity of excess labor required for rehandling.

Two first aid teams, composed of six men each, have qualified in the work, having been instructed by a government agent.

In conclusion, the pre-existing labor force of 305 men, required to operate two furnaces, was reduced to 160 men. However at present the company is operating its No. 2 furnace only, with 112 men as compared with 175 men formerly used to operate one furnace.

## Taylor Society at Cleveland Next Week

The spring meeting of the Taylor Society will be held at the Hotel Statler, Cleveland, May 19, 20 and 21. The afternoon of the first day will be devoted to a sales executives' session, in charge of W. C. Dunlap, vice-president American Multigraph Co., Cleveland, who is also scheduled as one of the leaders of the discussion. That evening an administrative officers' session will be held, one of those taking part in the discussion being E. W. Hulet, vice-president and factory manager White Motor Co., Cleveland. The plant managers' session will occupy the entire second day. The forenoon of the last day will be occupied by the personnel administration session, one of those conducting a discussion being Henry W. Raisse, organizer of the metal trades division of the American Federation of Labor at Cleveland. The afternoon will be occupied by the industrial relations session.

Friday noon, May 20, the Cleveland Engineering Societies and the Electrical League of Cleveland will hold a joint luncheon meeting in the ballroom of the Hotel Statler, the subject of discussion being, "Why the Man of Big Administrative Affairs Should Interest Himself in Scientific Management." The Taylor Society is invited to attend. The Cleveland Engineering Societies have extended the use of their club rooms on the fourteenth floor of the Hotel Statler to the Taylor Society.

The fall meeting of the society will be held in New York Dec. 1, 2 and 3.

## Lake Iron Ore Shipments in April

Shipments of iron ore from Lake Superior ports in April, this year, as compared with April, 1920, were as follows in gross tons:

	April, 1920	April, 1921
Escanaba .....	.....	.....
Marquette .....	.....	.....
Ashland .....	.....	9,149
Superior .....	205,586	111,848
Duluth .....	25,268	27,431
Two Harbors .....	.....	27,783
Total .....	230,854	176,211
Decrease .....	.....	54,643

The Great Northern ore dock is credited with 45.35 per cent of the total this year as compared with 71.85 per cent last year. The Duluth percentage this year was 15.57 per cent against 10.97 per cent last year.

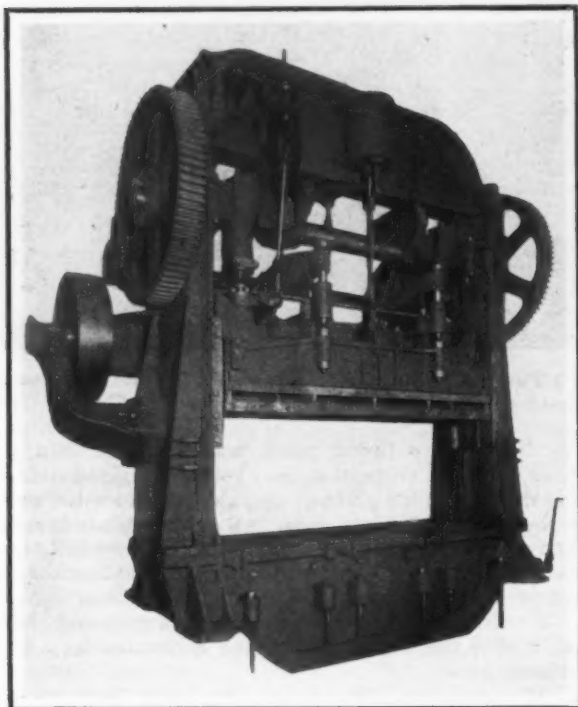
H. B. Kirkpatrick, contracting manager of the Koppers Co., spoke April 28 before the Engineers' Club of the Youngstown district on "By-Product Coke Ovens." He directed particular attention to the use of the gas producer and to the uses of by-product coke gas in both the metallurgical and domestic fields.



### Large Double Crank Press

A large double crank press the weight of which is 300,000 lb., the width between uprights, 173 in., the area of bed from front to back by right to left, 61 x 173 in.; area of slide, front to back by right to left, 42 x 164 in.; stroke of slide 18 in.; and distance of bed to slide, all up 73 in., has been brought out by the Toledo Machine & Tool Co., Toledo, Ohio. The machine is intended for automobile manufacturers who require a universal press suitable for a wide range of work.

The special features include a cam-actuated stripping and holding device and a spring pressure drawing attachment, both of which may be readily thrown out of action. These special features permit use of the press for the blanking, forming and perforating of side rails and running boards; the blanking and forming of certain kinds of cross members, rear axles housings, etc.; and also for the blanking and forming of fenders,



Large Double Crank Press Adaptable to a Wide Range of Work in the Manufacture of Automobiles. The design includes a cam-actuated stripping and holding device and a spring pressure drawing attachment

aprons, doors and other of the larger light stampings which enter into the construction of automobile bodies.

The cam-actuated stripper and clamping device is used in connection with the perforating dies and the spring pressure drawing attachment with some of the forming dies. The shut height, or distance from the bed to the slide is sufficient to accommodate high dies. Ring risers are used to lessen the shut height when blanking dies are being operated.

Among the features designed for convenience of operation may be mentioned a friction clutch with vertical hand lever control and positive automatic stop, permitting the stopping or starting of the press at any point of the stroke or causing it to run continuously or stop automatically at the top center after each revolution of the crank-shaft. A power elevator is provided for raising or lowering the slide, which is of convenience when setting dies of various heights. A centralized forced feed lubricating system permits lubricating of all the main bearings from the floor. Two air cylinders are used to counterbalance the slide.

The press is driven by a 100 hp. motor belted directly to the flywheel. All gears are machine cut from the solid and are protected by metal guards.

An explosion occurred in one of the drying furnaces of the Reliance Steel Casting Co. on the evening of May 2. The damage was slight and in no way has interfered with the operation of the plant.

### Motorcycles and Bicycles

That the automobile has not entirely eliminated muscular power in road locomotion is shown by the Census Bureau's report on the manufacture of bicycles, of which 470,675 were produced in 1919, against only 299,029 in 1914, a gain of 57.4 per cent. The value has more than trebled.

But the number of motorcycles built has declined, from 62,154 in 1914 to 59,214 in 1919. Due to an increase in unit price, however, the rated total value has increased 33 per cent.

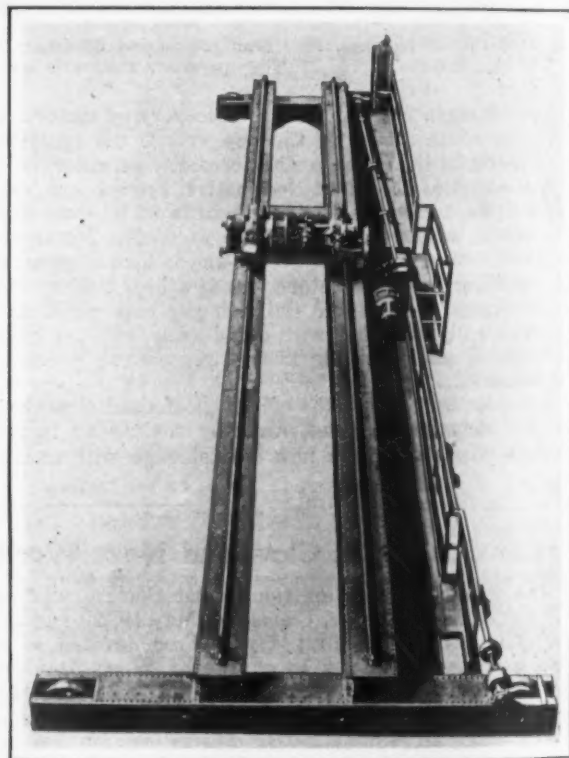
Including parts and repairs, side cars and tricycles, the total output of the industry, as measured in dollars, more than doubled during the five years, advancing from \$26,882,060 in 1914 to \$55,311,738 in 1919.

	1914	1919
Motorcycles produced .....	62,154	59,214
Motorcycles, total value.....	\$12,161,775	\$16,176,055
Motorcycles, unit value.....	\$195.70	\$273.20
Bicycles produced .....	299,029	470,675
Bicycles, total value.....	\$3,757,318	\$12,277,341
Bicycles, unit value.....	\$12.57	\$26.09

### Crane Designed for Curved Track

The Champion Engineering Co., Kenton, Ohio, has designed an overhead crane the truck driving mechanism of which is designed to permit the proper traverse of the crane on curved track. It was invented and patented by R. W. Valls, vice president and general manager of the company.

In the design interchangeability of parts has been



Crane Designed for Curved Track. Gears and pinions of the driving mechanism are of the same size, excepting one gear and pinion at the center of the bridge

aimed at, all gears and pinions of the driving mechanism being of the same size, excepting the gear and pinion at the center of the bridge. The arrangement also allows of one size gear case. A further object is the correction of the tendency of electric traveling cranes of the overhead type to get out of square so to speak. A squaring-up device is provided which is applicable as well to cranes operating on straight tracks.

The crane shown in the accompanying illustration was built for the round house of the Pennsylvania Railroad at Columbus, Ohio. It is claimed that notwithstanding its span of 75 ft., the loss in traveling the complete circle is but  $\frac{1}{4}$  in.



# Large Subsidies by German Government

Secretary Hoover Shows Necessity for Protection—  
Important Information Being Collected—Exchange  
and Anti-dumping Features Under Consideration

—BY L. W. MOFFETT—

WASHINGTON, May 10.  
THE IRON AGE BUREAU,  
816 Fifteenth Street.

**B**ECAUSE of large indirect subsidies from the Government, German manufacturers are able to undersell American competitors, the House Committee on Ways and Means was told last week by Secretary of Commerce Herbert Hoover. He stated that German steel is being offered at the present time at prices with which practically no other country can compete. This steel is going to neutral markets. His appearance before the committee was requested in order that he might describe conditions revealed by a study as to cost of production in Germany made by the Bureau of Foreign and Domestic Commerce, and also to advise the committee of the preparations that his department is making to supply the customs officials wholesale American valuations, cost of production and the relative values in Germany to-day compared with those of other countries and to show the injury being done to American industries. The information is to be used in connection with the permanent tariff legislation.

Emphasizing the amount of indirect subsidies being granted by the German Government, Secretary Hoover said that an analysis showed its expenditures would indicate, roughly, that of a total budget in excess of 80,000,000,000 marks, somewhere between 50,000,000,000 to 60,000,000,000 marks are spent through relieving German manufacturers, railroads and public utilities, etc., of costs that would normally apply. The German Government even goes to the extent, he said, of importing a large amount of food supplies and reselling them at a loss to the consumers. German exports are largely increasing in certain lines, it was stated, and actually have driven American optical glass manufacturers out of business. Inflation was stated to be at a huge point and must stop somewhere. The secretary agreed with the opinion of Representative Garner, that it will come to a point where it will destroy Germany's industries, rather than promote them. The German Government was said to be existing by printing paper money.

## Proposed American Valuation

Asked by Representative Crisp as to his opinion whether it would be advisable for the United States to change its policy of levying duties to American valuations, Mr. Hoover said that his impression is that with the unstable currency and exchange situation existing in a large part of Europe today, there is practically no other alternative. He said he did not think it would be at all advisable under any other circumstance.

"There is a very great difficulty in meeting the economic effect of the tremendous currency depression and the fiscal policies of many States," he said. "I would be very glad, indeed, if some one could suggest a device that would be less troublesome to trade and to the Government. Its administration will be very difficult. So far, I have seen no inspiration of a higher method or a workable alternative that would meet this wide variation between economic levels and exchange values; that is, quoted exchange does not represent equivalent purchasing value in service, etc."

Mr. Hoover said that his department had a partial equipment to supply the information suggested regarding customs wholesale American valuation, production, relative values in Germany and injury being done American industries. In this connection, he said:

## Increase in Staff Necessary

"The department has commercial attachés and trade commissioners abroad, who are in constant study of economic problems, the problems of cost of production,

etc. It would require additions to that staff in order to enable the department to furnish the data that would be necessary for customs officials. How much expansion of the staff abroad would be required I am not able to say; probably a personnel of 10 or 12 principals in addition to those now on the staff. When we have a more detailed knowledge of what the act may require, we may estimate a larger number. As to the domestic side of the problem—that is, the determination of wholesale and retail price and, in some cases, the cost of domestic production—we could organize co-operative action, between the Census and the Bureau of Foreign and Domestic Commerce, and could cover a considerable part of the field. There, again, it would be necessary perhaps to have some additional staff. I will have the question of additional staff looked into as soon as the range of material to be secured becomes clear. I have the feeling that if these data are secured—and they must be secured to carry out the act as at present proposed—that they will comprise material of great importance to our commercial community as a whole. That is, a more accurate determination of wholesale and retail prices than is now carried out by the Government would be of great advantage to the public through the publication of average prices of more commodities and more accurate indexes of price movements than at present. If these data are to be secured for purposes of administration of the act, it is desirable indeed that they should be used also for its broader commercial and public value.

"The same may be said with regard to the collection of some of the data abroad. A great deal of that material, in the form of averages and its interpretation as to its relation on our own industry and commerce, would have public value. Therefore it would seem to me desirable that the collection of these data should be carried out by some agency of the Government who could turn them to both accounts. They would, in fact, result in economy of the administration."

Charles E. McNabb, of the Tariff Commission, told the committee that it was a matter of conjecture as to what would happen if there is a change of American valuation, but said that there are advantages in enacting this legislation as an independent bill, which the committee has taken under further consideration. He pointed out that if the bill passed independently of the tariff and before the general tariff, it would enable everybody, the customs officers, importers, manufacturers and all others concerned, to study the proposed change of appraisement with all the other changes in the administration features before them and to prepare for the enforcement of the proposed law, if the day when it goes into effect should be the day when the tariff act shall take effect.

## Anti-Dumping Legislation

What may be done ultimately with regard to exchange as well as anti-dumping legislation, of course, depends upon an agreement between both the branches of Congress, the Senate, as stated in THE IRON AGE of last week, having provisions that are largely different from those of the House. Senator Penrose, chairman of the Committee on Finance, stated that the dumping provisions, which his committee reported, are the unanimous verdict of the Treasury experts. He explained that a salient feature of the Senate amendment to the House provision is that which leaves the Secretary of the Treasury the decision as to whether there is dumping. He also mentioned as being very

important the amendment in striking out the differential conversion of currency feature. It was his opinion that this would have imposed an enormous increase to duties on at least the products from Germany, but said that he wanted to correct the impression that the amendments in any way tend to greatly increase the duties. It is the attitude of the Senate that caused the Ways and Means Committee to hold a special hearing.

In this connection, Senator Penrose presented a statement prepared by the Bureau of the New York Customs House, showing the difference between the foreign home consumption prices and the foreign export prices in countries wherein the currency has been depreciated more than 66 2/3 per cent, the basis of calculation proposed by the House. With relation to certain items of steel and non-ferrous or related metals, this statement showed:

Merchandise	Country of Exportation	Percentage Increase Over Home Market Prices for Exportation to United States
Aluminum, flatware, spoons, forks, ladles, etc.....	Germany	10-50
Surgical instruments .....	Germany	33 1/4-50
Machine needles .....	Germany	25-75
Rifles .....	Austria	50-100
Wire cloth .....	Germany	100
Steel balls .....	Germany	10
Piano wire .....	Germany	50
Chrome steel tubes.....	Germany	10
Enameled steel ware.....	Germany	14 1/2-29

## New Bill Follows Lines of Payne-Aldrich Act

WASHINGTON, May 10.—Completion of the final drafting of the several unfinished paragraphs of the metal schedule in the permanent tariff bill is expected to be done within a short time, and Chairman Fordney of the House Committee on Ways and Means told THE IRON AGE that he hopes to report the bill to the House by May 20. As has been stated previously, manganese ore, ferromanganese and aluminum constitute some of the items in the metal schedule upon which a determination has not been reached by the subcommittee, headed by Representative John Q. Tilson. It is believed that these items will be laid before the full committee in order to decide what disposition will be made of them. Apparently there is a difference of views as to whether they should be made dutiable or free, and, if the former, what rates should apply to the respective metals. That there is considerable support among some members of the full committee in favor of placing a duty on manganese ore seems evident and should this sentiment prevail, it is obvious that ferromanganese would be given a proportionately higher duty, though doubt exists that it would be so high as 1c. per pound as is said to have been considered at one time. Recommendation of a duty of 2c., which had been made by domestic producers is not thought to have been given any consideration. They insist strongly, however, that such a low duty as \$2.50, carried in the Payne-Aldrich tariff, would be of no avail whatsoever. No reports of a responsible character have been made as to what duty, if any, may be placed on aluminum, a metal that in former years has been the object of vigorous debate in connection with the preparation of tariffs between those favoring a protective duty and those favoring the placing of this metal on the free list.

Meanwhile, the metal subcommittee practically is marking time on this schedule, pending final settlement of the policy regarding the unfinished paragraphs, and is devoting most of its time to the sundries schedule, of which it also has been placed in charge.

Chairman Fordney in a statement made last Saturday stated that the new tariff bill would be framed in a tentative form this week, and it is hoped that it will be put into permanent shape in time for reporting by May 20, although it may require a somewhat longer period. Delay in having the bill ready as early as had been expected originally is due to a difference of opinion among members of the committee, but the varying views, it is said, do not pertain to any items in the metal schedule other than those mentioned. Generally, the bill is understood to have followed the lines of the Payne-Aldrich measure, and this seems to be true of the

Senator Penrose said that another feature of the dumping amendment which originated in the Finance Committee was that providing for an opportunity to examine the books of the exporter. He said that it is recognized that the great mass of honest exporters have no objections to examination of their books by the American officials, but there remains a very small percentage of exporters who have objected to such examination, resulting in a very reasonable assumption that there is something to conceal. At the same time, he pointed out that the exporter argues that to have an inspector of another country go into his books might place him at a disadvantage with his competitors. The committee, therefore, curtailed the original draft of the provision so as to make it apply only to the market value of the merchandise. He said that in his opinion this limitation would seriously diminish the effectiveness of what the committee was after, that is, the prevention of fraud. But in view of protests from the State Department and of criticism from foreign governments, it was stated that the committee thought it wiser to be moderate in this respect, and therefore, the amendment stands as it does.

Senator Penrose pointed out that whether rates are raised or not, the anti-dumping provision is not intended to produce large revenue, but is designed as a preventative. The mere fact that the provision exists on the statute tends to prevent dumping.

heavier iron and steel products, as Representative Tilson said would be the case. Democrats say the Payne-Aldrich rates are approximately 66 per cent higher than the Underwood-Simmon rates. Transfer of many of the items in the free list of the latter act to the dutiable list is understood to have been determined upon.

It is indicated that the change in the Fordney bill of the basis of collection of customs from the wholesale market value in foreign countries to the wholesale market value in the United States, with corresponding reductions in ad valorem rates, will be the center of a fight both in the House and between the House and the Senate, the latter having drafted a less rigid exchange provision, which, with the anti-dumping amendment, is attached to the emergency tariff bill, to be voted on in the Senate to-morrow. Mr. Fordney expressed pleasure at the progress made last week by the Committee on Ways and Means in developing what he called a working plan for the American valuation system, whose adoption, he says, is assured.

### Complaint Is Dismissed

WASHINGTON, May 10.—Announcement was made last Saturday by the Federal Trade Commission of dismissal of a complaint against the American Sheet & Tin Plate Co., upon a charge of price discrimination. The dismissal was upon the commission's own motion "without prejudice." The complaint is an old one, having been issued by the commission on Feb. 6, 1919, and alleged that the respondent discriminated in price between different purchasers. The charge was entirely disproven. The commission in dismissing the complaint contented itself with the bare announcement of the fact.

### Supply and Machinery Dealers' Conventions

The annual conventions of the American Supply and Machinery Manufacturers' Association, the National Supply and Machinery Dealers' Association and the Southern Supply and Machinery Dealers' Association will be held jointly at Atlantic City next Monday, Tuesday and Wednesday.

Fire destroyed the stock and building of the Paducah Iron Co., iron, steel and heavy hardware, Paducah, Ky., on April 16. Most of the stock was covered by insurance. The company will be located at 216 South First Street and traveling salesmen will be sent out in about two weeks.



# Foreign Trade Furthered at Cleveland

Extension of Credit the One Vitally Necessary  
Thing To-day—Convention Makes Cogent Declarations on Merchant Marine and Export Financing

THE Eighth National Foreign Trade Convention held at Cleveland, May 4, 5, 6 and 7, showed more than ever that American manufacturers are learning to think internationally. "Greater prosperity through greater foreign trade" has been the slogan of these conventions. It will be noticed that the slogan does not say "through greater export trade." Attendants at these annual conventions are well grounded in a chief fundamental of foreign trade extension—that if we would export we must take much of our pay in imports.

The convention of last week had an attendance of between 1600 and 1700. At San Francisco last year nearly 2500 attended, but in that case there was a great outpouring from all the Coast States, with the surprising attendance of about 900 from east of the Mississippi River, many of the delegates making their first trip to the coast. Cleveland was chosen for this year's convention as being in the heart of the intense industrial life of the Middle West. The attendance undoubtedly would have been larger but for the business depression. It is probable that some of the opportunists in the export trade are faint-hearted in view of the unpromising world outlook. But the seasoned exporters were at Cleveland in force, full of courage and ready to marshal all their experience and organizational resources in the present emergency.

Some strong notes were sounded. Governor Harding of the Federal Reserve Board spoke well at the opening session and was even optimistic. He considered this a time for renewed courage and confidence, saying that the country had passed through the worst and was every day reaching a safer basis on which to do business. He considered the present maladjustment in prices, under which some products had been depressed below the cost of production, as temporary and believed that prices still insufficiently reduced would in time be readjusted. In his opinion there was no point in forcing credit liquidation further. Many businesses which have been liquidated should now be encouraged to build up.

## Constructive Suggestions on Merchant Marine

President James A. Farrell, who has been from the beginning the acknowledged leader in this organized foreign trade movement, read a paper on the American merchant marine which was an outstanding feature of the convention in its constructive thinking on this most difficult question. Every

business man who has been called into conference by President Harding on the immediate problems of this administration has been impressed by the emphasis the President has put on the shipping dilemma—perhaps catastrophe is a better word. The Cleveland convention has helped in pointing the way out. Some of the blunders made in war time are irreparable. The country must be willing to call a considerable part of the \$3,000,000,000 spent by the Shipping Board, a waste of the war, but it is not too late to take some steps toward the making of a place for American owned and operated vessels in international trade. A first essential is to do away with the unjust discriminations of the La Follette act.

## Financing Foreign Trade

At San Francisco the dominant note was the obligation resting upon the United States as a creditor nation. At Cleveland the financing of foreign trade was naturally the question of commanding interest. Fred I. Kent, of the Bankers Trust Co., New York, led off with a thoughtful paper. In this, as in the contributions he has made to other conventions, he showed an initiative that has not been too plentiful in the banking community, and encouraged his hearers to believe that something may yet be done through banking sources in working out the problem of foreign trade credits.

The need of long time credits in our foreign trade was taken up as a special topic in the second general session of the convention, the various viewpoints of the exporter being well presented by George R. Meyercord, president Illinois Manufacturers' Association; J. J. Donovan, for the lumber interests of the State of Washington; F. H. Taylor, Philadelphia, representing specialty exports, and Julius H. Barnes, New York, speaking for exporters of agricultural products.

Ex-Secretary William C. Redfield, who presided at a luncheon of the American Manufacturers' Export Association and a group session which followed, on Thursday, impressed on his hearers the very vital need of forwarding the work of the Foreign Trade Financing Corporation. He urged that the capital this corporation would make available for financing foreign buyers would count far more at this juncture than the mere capitalization itself. The fact of \$100,000,000 of credits being extended in this way by American business men would be a far-reaching stimulus and its effect would be cumulative.

## Getting the International View-Point

THE iron and steel and machinery trades were better represented at Cleveland than at previous conventions. In addition to the paper of Mr. Farrell on "The Merchant Marine," the steel industry contributed to the discussion on "Commercial Education for Foreign Trade" which came up in one of the group sessions. The paper was prepared by W. S. Tower of the Consolidated Steel Corporation, New York, whose topic was "Means of Getting an International View-Point in Foreign Trade Education." An extract from Mr. Tower's paper follows:

"Among all recent questions bearing on the future of foreign trade of the United States, none has been more important than these two, tariff and reparations. Unfortunately, however, much if not most of the discussion of them has revealed anything but an inter-

national point of view, and far from a clear grasp of fundamental geographic and economic relations.

"The tariff, in theory at least, is a matter of economics, although in practice it too often becomes only a matter of political expediency. World, not local economic relations, must be considered if the real function of tariff legislation is to be effective. Economic geography and international economics together will show to any one that no single tariff policy will fit all places alike and that no place which is progressing economically will always necessarily be fitted by the same tariff policy. They show equally well that the effects of tariff legislation in any important country like the United States are invariably felt throughout the commercial world, and that if tariff legislation is regarded as a factor in promoting national prosperity,

the question of how best to insure that prosperity can be answered only in the light of international trade relations.

"For example, an emergency tariff on grains, amounting in effect to an embargo on wheat imports to the United States, can do the wheat producer of this country no good. A frank admission of the facts in the case would have recognized this situation at the outset and at the same time it also should have been pointed out that the passage of such legislation might seriously injure other aspects of our foreign trade. Political expediency, however, recognizes no facts; its vision is chronically limited; and its anxiety over local interests blinds it to the real issues of world wide significance.

#### German Reparations Question

"The German indemnity question has illustrated the same tendency to ignore some of the larger aspects in favor of the more local bearing of the case. There has been unlimited discussion of the amount of reparations, as if the only items of importance in this connection are German economic conditions, and that nation's ability to pay. But there has been little discussion of possible means of payment, by which any substantial sum can be collected without actual injury to other interests. Yet that appears to be the real nub of the reparations issue whether viewed from the angle of France or any other of the allies.

"There can be no sympathy with those who would let Germany off too easily, but those who would exact the last penny should be sure that they have measured both payment and means of collection, according to the international bearing of the case. It must not be for-

gotten that the United States, and all other great nations, have foreign trade interests, vitally important to national prosperity, now seriously depressed but in a position to be injured even more seriously, and perhaps permanently, through narrowness of vision on critical questions, like tariff and reparations.

#### The Language Barrier

"Finally, there is the social side of foreign conditions in which language, customs and traditions may be grouped. In the matter of foreign language the English-speaking peoples are as a rule about the most backward of any nations on earth, and this fact is undoubtedly one of the main reasons why the Englishman or American, for example, finds it so difficult to put himself on a basis of complete understanding with other peoples. The fact remains that inability to talk with others in their own tongue is a considerable barrier to real understanding and to satisfactory commercial intercourse.

"It is not easy to judge any man until one knows him. It is no easier to judge any nation until one knows it through real acquaintance with its language, ways of thinking, customs and traditions: These must come, if at all comprehensively, first through the language, then through study and travel. Foreign trade transactions are made with individuals, and the proper international point of view for foreign trade includes an understanding of individuals as well as the geography or the economics of the world. A more general appreciation of these facts would result in fewer unwise selections of foreign agents and salesmen who know little or nothing of the people with whom they are supposed to develop business."

## The Declaration of the Convention

THE general sessions of the convention were ably presided over by A. C. Brown, president Brown Hoisting Machinery Co., Cleveland, who is president of the Cleveland Chamber of Commerce. At the concluding general session held on Saturday morning, President James A. Farrell took the floor to read the final declaration of the convention, which, practically in full, is as follows:

The world is suffering to-day from unbalanced exchanges. Notwithstanding the position of the United States as a creditor nation, the present unstable financial condition of a large part of the world, especially of Europe, is the fundamental cause for our own business depression. A return to normal conditions in our own country depends in large part upon an improvement of our foreign trade. The present retrogression is clearly evidenced by the maximum of the country's export trade \$928,000,000 in June, 1920, decreasing in October to \$751,000,000 and in March, 1921, to \$384,000,000.

Foreign nations whose imports exceed their exports have been compelled to curtail purchases because of inability to pay by exports. The result of this would be eventual restoration of more normal exchange, but the requirements of international commerce and domestic prosperity in each country demand immediate relief from present stagnation.

The United States must continue to increase its imports of raw material and merchandise not detrimental to existing industry in order to receive pay for the exports necessary to stable employment of labor in agriculture and industry and to permit of the liquidation of the obligations of the debtor nations. Continued liquidation in gold of foreign obligations to us will tend to renew inflation and arrest the beneficial readjustment of values on the basis required by present conditions throughout the world.

It is generally agreed that the solution depends upon our ability to create adequate facilities for the purpose of drawing upon surplus American investment funds in order that the long term credits so badly needed by the disorganized countries of Europe may be furnished. Most of the countries of Europe are unable to pay us now and for some time to come in gold or merchandise and unless they are enabled to obtain credits to purchase the raw materials which they need their business and ours will continue to stagnate.

#### More Financing for Exports Needed

We urge the immediate creation of financial institutions under the Edge law whose machinery will facilitate extension of long term credits to promote free exchange of exports and imports. We commend efforts to acquaint our investing public with the necessity of purchasing debentures issued by such institutions against approved foreign securities for this purpose so that eventually every community will serve its own vital interest in furthering our foreign commerce as a necessary component of domestic prosperity.

The reduction of loans and accumulation of banking reserves now permit and the lower prices of many commodities justify, the extension of credits sufficient to accelerate recovery in certain lines. This should gradually thaw frozen credits and end stagnation. It will further provide increasing export and import cargoes for our now partially idle merchant marine and contribute to restoration of economic equilibrium in countries suffering from war debts and inflated currencies and to a proper distribution of commerce in neutral markets.

#### Danger of Financial Panic Passed

The increased confidence prevailing in the American business world denotes the disappearance of danger of financial panic. As liquidations progress and reconstruction in Europe proceeds, normal conditions will be restored. Nevertheless, after so great a disturbance in business and financial conditions, it is prudent to recognize that equilibrium will be restored and commerce resumed only by gradual processes. Months may elapse before necessary liquidation will have been accomplished. It will continue to be the part of prudent commercial and financial interests to refrain from hasty and ill-advised expansion, tending through renewed inflation to nullify quickly the present fruitful efforts of conservative business men to lead the country back into paths of safety and sanity.

It is manifest that while many products of our soil have been reduced in value to pre-war levels, a number of manufactured products remain too high in cost of production to compete in neutral markets with foreign goods. It is essential that the substantial reduction in cost of living, which has already occurred in food products and other basic commodities, shall be followed by economies in cost of production until a stable balance of values of all commodities and productive effort is established. No readjustment, however, can be complete without reduction of costs of railroad transportation both for domestic and export shipment. Continuance of our present cost of finished merchandise would maintain unreasonable expense of living and put our products in a non-competitive position in markets of depleted purchasing power.

#### American Maritime Policy

Congress has declared in favor of private ownership of our merchant marine as soon as practicable, but under present conditions it is impracticable to dispose of any considerable proportion of our merchant marine to private owners at fair prices.

So much of the fleet as can not be chartered on a bare boat basis or time charter to private operators should be laid up pending the revival of world commerce, meanwhile the fleet will serve our national security as a naval auxiliary, in case of necessity.

The plan should be abandoned of allocating ships to load at ports and for trade routes irrespective of the tonnage of



cargo offering or of the losses to the Government attendant on this policy.

While it is obvious that the ultimate sale price will be measured by the world market for similar ships, such parity of price and successful operation can be obtained only if the operating costs are approximately equal to those of our foreign competitors.

Present shipping laws requiring larger crews subject American vessels to a disadvantage estimated at 5 per cent on the capital investment, while the compulsory advance of half wages in any foreign port of call adds a further burden of cost by involving excessive delays.

As continued maintenance of the American merchant marine is of vital interest to American producers, exporters and importers, they should require the employment of American vessels in the carrying of their shipment of exports and imports to such extent as they are able to exercise preference or control and in any case they should prevent discrimination against American ships in such transportation.

Excessive governmental expenditure in all countries imposes upon the commerce of the world a burden, the further increase of which can end only in disaster. Provision of facilities for commerce is futile if every business activity continues to be oppressed by a multiplication of taxes. For the recovery of normal prosperity the utmost economy in governmental expenditures should be accompanied by unremitting frugality in private business.

#### Importance of Standardized International Definitions

Throughout the world the stress of readjustment has been attended by deplorable violations of the sanctity of contracts, emphasizing the absence of adequate international machinery for the enforcement of awards of commercial arbitration. This deficiency should be promptly remedied. In many instances all parties affected by breaches of contracts sincerely believe themselves in the right, as numerous commodities in foreign trade are not standardized. Standardization of the grain, cotton, iron ore and other staple trades has protected them from the defaults so numerous with merchandise to which standardization should, so far as practicable, be applied. Business interests should co-operate with the United States Government to this end.

Through the initiative of the National Foreign Trade Council standard definitions of shipping terms (f.o.b., c.i.f., etc.) in foreign trade have been generally adopted in the United States. The concurrence therein of commercial organizations abroad should be sought by the Council. Revision and uniformity of ocean bills of lading is greatly to be desired now that the hazards of war are removed.

We commend the efforts of the American Banker's Association and other organizations to adopt uniform standards of letters of credit.

#### Urged to Hold on in Foreign Fields

American export business has been injured in the past by lack of persistent effort to hold markets already gained. American producers are urged not to abandon or lose interest in their foreign trade because it shows no profit for the moment and to remember that in many cases it will cost

much more to regain in the future a business lost now through lack of courage and foresight.

The vast market which the United States offers to other nations on a basis of equality and the supplies of American raw material exported without taxation or discrimination entitle the American export and import trade to equality of treatment in all foreign markets.

To insure such equality of treatment, the American tariff, whatever its underlying principle, should provide for additional duties on imports from nations discriminating, by tariffs or administrative practices, against the trade of the United States.

#### National Training Academy for Foreign Service

The foreign service of the United States should be reorganized and established under a unified supervision which will promote its efficiency, both in diplomatic representation and in the collection and dissemination of commercial information. This reorganization should provide for a permanent career through the establishment of a national training academy for the foreign service, which will attract competent and ambitious young men into a life work of constructive effort in their country's service.

Scientific educational training is an essential for our business agents as for our official representatives. It should equip them with accurate and practical knowledge of foreign markets and languages, as well as of the economic, social and political conditions prevailing in other lands. The exchange of scholarships, already established with several countries, is a most helpful means to this end, and should be widely encouraged.

The convention urges upon Congress the vital importance of prompt action upon measures affecting our foreign trade now pending before it. Chief among those calling for immediate enactment are the increases of appropriation that will provide for much needed expansion and improvement in the Bureau of Foreign and Domestic Commerce and in the Bureau of Standards in the Department of Commerce.

We urge the earliest possible enactment of the China trade act, which will permit the formation of American companies to trade in China on a plane of tax equality with their competitors of other nationalities.

#### Congressional Committees on Foreign Commerce

The steady maintenance of a prosperous foreign trade is as vital to the successful operation of government as to the welfare and contentment of all our people, and we submit that the time has come when the two houses of Congress may well consider the establishment of separate standing committees on foreign commerce as a means of insuring more prompt and effective handling of measures affecting foreign trade.

We commend the improvement of foreign postal communications and the extension of international parcel post service recently accomplished, and urge upon Congress the revision of the revenue law necessary to permit the negotiation of a parcel post convention with Cuba, so that our manufacturers and exporters may be enabled to enjoy the same means of access to that market now available to their European competitors.

## Representatives of Steel and Metal Working Industries

**A**MONG representatives of iron, steel and machinery trades in attendance at the convention were the following:

G. F. Ahlbrandt, American Rolling Mill Co., Middletown, Ohio; T. P. Alder, United States Steel Products Co., New York; Robert S. Alter, American Tool Works Co., Cincinnati; Alonzo F. Allen, American Steel & Wire Co., Cleveland; W. W. Anderson, Oil Well Supply Co., Pittsburgh; Gustav E. Anstrand, Columbian Enameling & Stamping Co., Terre Haute, Ind.; Simon Apatov, Columbian Hardware Company, Cleveland; W. J. Austin, Austin Co., Cleveland.

Louis A. Babcock, Byers Machine Co., Ravenna, Ohio; Harvey G. Baldwin, American Steel & Wire Co., Cleveland; Richard W. Bailey, American Bridge Co., Pittsburgh; E. A. Baldwin, International Electric Co., Schenectady, N. Y.; H. H. Barbour, Lackawanna Steel Co., Buffalo; J. R. Bartholomew, Detroit Twist Drill Co., Detroit; Henry A. Barten, American Steel & Wire Co., Cleveland; W. S. Bartholomew, Westinghouse Air Brake Co., Pittsburgh; Robert Bastow, Corona Typewriter Co., Inc., Groton, N. Y.; F. L. Batson, National Cash Register Co., Dayton, Ohio; A. L. Baylor, James Leffel & Co., Springfield, Ohio; Chas. W. Beaver, Yale & Towne Mfg. Co., Stamford, Conn.; Herbert F. Beebe, Winchester Repeating Arms Co., New Haven, Conn.; Clarence E. Bement, Novo Engine Co., Lansing, Michigan; H. A. Bishop, Petroleum Iron Works Co., Sharon, Pa.; Joseph Blank, Koppel Industrial Car & Equipment Co., Koppel, Pa.; P. E. Bliss, Warner & Swasey Co., Cleveland; C. E. Bregenzer, Iron Age Catalogue of American Exports, New York; Chas. W. Bringman, American Seeding Machine

Co., Inc., Springfield, Ohio; A. C. Brown, Brown Hoisting Machinery Co., Cleveland; Carroll W. Brown, Brown Hoisting Machinery Co., Cleveland; Lloyd Brown, Lakewood Engineering Co., Cleveland; G. A. Bryant, Jr., Austin Co., Cleveland; E. G. Buckwell, Cleveland Twist Drill Co., New York; E. A. Burke, Hibbard, Spencer, Bartlett & Co., Chicago; Mrs. Bessie Matthews Burns, James L. Taylor Mfg. Co., Poughkeepsie, N. Y.

W. E. Caldwell, Cleveland Twist Drill Co., Cleveland; D. J. Campbell, Dodge Sales & Engineering Co., New York; D. J. Champion, Champion Rivet Co., Cleveland; Frank N. Coe, Acheson Graphite Co., Niagara Falls, N. Y.; A. B. Cole, Westinghouse International Electric Co., East Pittsburgh, Pa.; A. C. Cook, Warner & Swasey Co., Cleveland; Mary A. Connor, Kilbourne & Jacobs Co., Columbus, Ohio; F. W. Copeland, Sullivan Machinery Co., Chicago; George H. Corliss, S. A. Woods Machine Co., Boston; Maurice Coster, Westinghouse Electric International Co., New York; Jacob D. Cox, Jr., Cleveland Twist Drill Co., Cleveland; E. A. Craig, Westinghouse Air Brake Co., Pittsburgh; G. H. Creveling, Wickwire-Spencer Steel Corporation, Worcester, Mass.; H. J. Cross, American Shipbuilding Co., Cleveland; W. R. Cummings, Monroe Calculating Machine Co., New York.

H. G. Dalton, Pickands, Mather & Co., Cleveland; George J. Danz, Hofius Steel & Equipment Co., Seattle, Washington; A. F. Davis, Lincoln Electric Co., Cleveland; A. T. DeForest, U. S. Steel Products Co., San Francisco; H. S. Demarest, Greene, Tweed & Co., New York; W. L. Deming, Deming Co., Salem, Ohio; Richard Devens, Brown Hoisting Machinery Co., New York; Wm. P. Dixon, Jones & Laughlin Steel

Co., Pittsburgh; Thos. Draper, Draper Mfg. Co., Port Huron, Mich.; E. Wilhelm Droosten, Robbins & Myers Co., Springfield; W. C. Dunlap, American Multigraph Co., Cleveland.

D. P. Eells, Bucyrus Co., South Milwaukee, Wis.; H. C. Ellis, Henry Disston & Sons, Inc., Philadelphia; J. W. Elwood, General Electric Co., New York; E. A. Emerson, American Rolling Mill Co., Middletown, Ohio; S. A. Emery, Dodge Sales & Engineering Co., New York; Jno. E. Emmert, Frick Co., Waynesboro, Pa.; W. W. Ewing, Jones & Laughlin Steel Co., Pittsburgh.

James A. Farrell, United States Steel Corporation, New York. Pedro A. Fernandez, W. S. Tyler Co., Cleveland; A. I. Findley, THE IRON AGE, New York; E. A. Fisher, Whitman & Barnes Mfg. Co., Akron, Ohio; F. J. Fisher, Standard Motor Truck Co., Detroit; Stanley G. Flagg, Jr., Stanley G. Flagg & Co., Philadelphia; A. N. Flora, Trumbull Steel Co., Warren, Ohio; E. A. Forsyth, Buffalo Forge Co., Buffalo, N. Y.; Neal W. Foster, National Acme Co., Windsor, Vt.; R. R. Fox, Simonds Mfg. Co., New York; D. W. Frackelton, Chandler & Price Co., Cleveland; Ed. A. France, Jones & Laughlin Steel Co., Cleveland; Fritz J. Frank, Iron Age Publishing Co., New York; C. E. Frank, S. F. Bowser & Co., Inc.; Ft. Wayne, Ind.; Allan Fraser, Wickwire-Spencer Steel Corporation, Worcester, Mass.

J. W. Gallagher, United States Steel Products Co., Shanghai, China; Albert H. Garry, American Steel & Wire Co., Cleveland; Chas. Gasper, National Malleable Castings Co., Cleveland; J. K. Gennett, Austin Co., New York; J. J. Gilbert, International Western Electric Co., Inc., New York; D. W. Glazer, Otis Steel Co., Cleveland; Harvey E. Golden, General Fireproofing Co., New York; William E. Goodman, Goodman Mfg. Co., Chicago; E. E. Goodwillie, Bethlehem Steel Co., Cleveland; W. A. Gordon, American Stove Co., Cleveland; Julius Goslin, Joubert & Goslin Machine & Foundry Co., Birmingham, Ala.; H. F. Griffith, Westinghouse Electric International Co., East Pittsburgh; Philip M. Guba, Donner Steel Co., New York.

A. B. Hall, Whitman & Barnes Mfg. Co., Akron, Ohio; Thos. C. Ham, Jones & Laughlin Steel Co., New York; E. H. Hart, Stanley Works, New York; Geo. P. Hart, Stanley Works, New Britain, Conn.; E. L. Hartig, Joseph T. Ryerson & Son, Chicago; A. E. Henn, National Acme Co., Cleveland; F. D. Herbert, Kearfoot Engineering Co., New York; B. L. Herman, Iron Age Catalogue of American Exports, Cleveland; Edwin M. Herr, Westinghouse Electric & Mfg. Co., Pittsburgh; Henry A. Hildreth, Wickwire-Spencer Steel Corporation, Worcester, Mass.; H. H. Hirschfeld, American Saw Mill & Machinery Co., New York; Lawrence Hitchcock, Reliance Electric & Engineering Co., Cleveland; W. L. Hoagland, Jr., Burroughs Adding Machine Co., Detroit; Albert C. Hofrichter, Crescent Brass Products Co., Cleveland; Henry P. Hoffstat, Koppel Industrial Car & Equipment Co., Koppel, Pa.; A. H. Holliday, Jones & Laughlin Steel Co., Pittsburgh; L. E. Honeywell, National Acme Co., Cleveland; James W. Hook, Allied Machinery Co., New York; E. M. Hartridge, Allied Machinery Co., Paris, France; L. S. Horner, Acme Wire Co., New Haven, Conn.; Chas. I. Horowitz, Hibbard, Spencer, Bartlett & Co., Chicago; Harold B. Hoskins, American Textile Machinery Corporation, Boston; Wm. P. Huffman, Buckeye Iron & Brass Works, Dayton, Ohio; Harold L. Hughes, United States Steel Corporation, New York; John Hughes, United States Steel Corporation, New York; A. L. Humphrey, Westinghouse Air Brake Co., Pittsburgh; S. M. Hunter, Novo Engine Co., Lansing, Mich.; Edward N. Hurley, Hurley Machine Co., Chicago; Grenville G. Huter, International General Electric Co., Schenectady, N. Y.

E. L. Jahncke, Jahncke Dry Docks & Ship Repair Co., Inc., New Orleans, La.; Frank Sheriden Jonas, Jonas & Nelson, representing Winchester Repeating Arms Co., Rio De Janeiro, Brazil; M. E. Johnson, Pittsburgh Steel Co., New York.

I. T. Kahn, Consolidated Iron-Steel Mfg. Co., Cleveland; W. G. Kaylor, Westinghouse Air Brake Co., New York; J. E. Kelley, Simonds Mfg. Co., Fitchburg, Mass.; Mark Kellogg, Burroughs Adding Machine Co., Detroit; Karl Kendig, Whitman & Barnes Mfg. Co., Akron, Ohio; B. R. Kennedy, Detroit Vapor Stove Co., Detroit; James R. King, Deming Co., Salem, Ohio; Lucian E. Kinn, Seneca Wire & Mfg. Co., Fostoria, Ohio; R. W. Knight, McClintic-Marshall Products Co., New York; George F. Konold, Jr., Warren Tool & Forge Co., Warren, Ohio; H. B. Kraut, Jos. T. Ryerson & Son, Chicago; W. C. Kretz, John A. Roebling's Sons Co., New York.

Chas. F. Lang, Lakewood Engineering Co., Cleveland; J. H. Larned, Henry Disston & Sons, Philadelphia; S. Forry Laucks, York Safe & Lock Co., York, Pa.; Robert E. Lees, Cleveland Motorcycle Mfg. Co., Cleveland; Harvey LeFevre, H. K. Porter Co., Pittsburgh; F. O. Lincoln, Morse Twist Drill & Machine Co., New Bedford, Mass.; H. M. Lucas, Lucas Machine Tool Co., Cleveland; Charles M. Luthy, Chain Product Co., Cleveland.

S. Livingston Mather, Cleveland-Cliffs Iron Co., Cleveland; John F. McCarthy, Victor Brass Mfg. Co., Cleveland; S. C. McConahey, Westinghouse Air Brake Co., Pittsburgh;

Wm. McFate, Trumbull Steel Co., Warren, Ohio; Harry L. McGee, Concrete Steel Co., New York; J. A. McGee, Chas. & Co., Pittsburgh; C. V. Marks, Ohio Brass Co., Mansfield, A. Schieren Co., Detroit; Chas. E. McInnis, Chas. E. McInnis & Co., Inc., Philadelphia; J. A. McLaughlin, Chas. A. Schieren Ohio; Harry P. Martin, Acheson Graphite Co., Niagara Falls, N. Y.; R. E. Martinez, Westinghouse Electric International Co., San Francisco; W. F. Martin, United States Steel Products Co., Havana, Cuba; E. H. Martindale, Martindale Electric Co., Cleveland; Samuel Mather, Pickands, Mather & Co., Cleveland; Constant Meese, Meese & Gottfried Co., San Francisco; A. D. Mellor, Berger Mfg. Co., New York; Andrew T. Merriam, American Steel & Wire Co., Chicago; P. G. Merrow, Merrow Machine Co., Hartford, Conn.; W. A. Myers, Robbins & Myers Co., Springfield, Ohio; Marc M. Michael, Consolidated Steel Corporation, New York; H. B. Miller, Otis Steel Co., Cleveland; Henry L. Miller, Luitwieler Pumping Engine Co., Rochester, N. Y.; J. R. Mills, Carnegie Steel Co., Cleveland; C. G. Miner, United States Light & Heat Corporation, Niagara Falls, N. Y.; Alex S. Mitchell, Champion Rivet Co., New York; Herbert G. Moebus and Frank A. Moeschl, Newport Rolling Mill Co., Newport, Ky.; D. J. Moynihan, Computing Scales Co., Dayton, Ohio.

B. C. Nevin, Bucyrus Co., New York; W. W. Nichols, Allis-Chalmers Mfg. Co., New York; E. E. Northway, Standard Tool Co., Cleveland, Ohio.

E. W. Oglebay, Oglebay, Norton & Co., Cleveland; H. C. Osborne, American Multigraph Co., Cleveland; M. A. Oudin, International General Electric Co., New York; Heber Outland, Cleveland Metal Products Co., Cleveland; F. G. Oviatt, Otis Steel Co., Cleveland; Roy G. Owens, Lakewood Engineering Co., Cleveland; W. S. Paden, Machinery Co. of America, Big Rapids, Mich.; R. H. Page, Truscon Steel Co., Youngstown, Ohio; G. A. Paine, Otis Steel Co., Cleveland; William P. Palmer, American Steel & Wire Co., Cleveland; Melvin Pattison, Brown Hoisting Machinery Co., Cleveland; R. N. Peck, Stanley Works, New York; E. V. Peters, New Jersey Zinc Co., New York; E. C. Pierce, Brown Hoisting Machinery Co., Cleveland; Clark P. Pond, David Lupton's Sons Co., Philadelphia; C. J. Pope, Universal Motor Co., Oshkosh, Wis.; E. R. Porch, Cleveland Metal Products Co., Cleveland; E. C. Porter, American Mining Congress, Washington, D. C.; Chas. T. Pratt, Brown Hoisting Machinery Co., Cleveland; J. P. Price, Brown Hoisting Machinery Co., Cleveland; Frank Purnell, Consolidated Steel Corporation, New York.

M. J. Rainey, Morse Twist Drill & Machine Co., New Bedford, Mass.; R. L. Rathbone, Westinghouse Electric & Mfg. Co., Cleveland; T. J. Ray, Peck, Stow & Wilcox Co., Cleveland; Albert E. Reed, W. S. Tyler Co., Cleveland; W. E. Rice, Western Electric Co., Cleveland; Herbert M. Rich, Cleveland Automatic Machine Co., Cleveland; George H. Richards, Dalton Adding Machine Co., New York; W. D. Robinson, Chicago Bridge & Iron Co., Chicago; H. A. Rock, Van Dorn Iron Works Co., Cleveland; E. M. Rogert, United Brass Mfg. Co., Cleveland; Paul P. Rohns, Clipper Belt Lacer Co., Grand Rapids, Mich.; Joseph T. Ryerson, Joseph T. Ryerson & Son, Chicago.

Chas. A. Schieren, Chas. A. Schieren Co., New York; A. Schoonmaker, Bourne-Fuller Co., New York; W. M. Scott, Sterling Mfg. Co., Cleveland; F. A. Searle, Landers, Frary & Clark, New Britain, Conn.; Warner Seely, Warner & Swasey Co., Cleveland; V. A. Seuberth, Chas. A. Schieren Co., Chicago; H. F. Seymour, Consolidated Iron-Steel Mfg. Co., Cleveland; Henry J. Sheehan, Norton Co., New York; George S. Shimer, Milton Mfg. Co., Milton, Pa.; A. J. Singer, Lackawanna Steel Co., New York; Frank Silloway, Deere & Co., Moline, Ill.; F. S. Slocum, Jones & Laughlin Steel Co., Pittsburgh; C. O'C. Sloan, Betts Machine Co., Rochester, N. Y.; James R. Smith, Taylor-Wharton Iron & Steel Co., Cleveland; S. L. Smith, National Malleable Castings Co., Cleveland; W. B. Smythe, Midvale Steel & Ordnance Co., Cleveland; R. J. Southwell, Wickwire-Spencer Steel Corporation, New York; L. B. Stauffer, Warner & Swasey Co., Cleveland; Hamilton Stewart, Harbison-Walker Refractories Co., Pittsburgh; C. J. Stilwell, Warner & Swasey Co., Cleveland; Elmer E. Stone, American Steel & Wire Co., Cleveland; H. G. Stout, Chain Belt Co., Milwaukee, Wis.; W. P. Sutphen, New Jersey Zinc Company, New York.

C. L. Thomas, American Laundry Machinery Co., Cincinnati, Ohio; Walter S. Tower, Consolidated Steel Corporation, New York; Merle J. Trees, Chicago Bridge & Iron Co., Chicago.

Wm. O. Vilter, Vilter Mfg. Co., Milwaukee; E. M. Voorhees, Avery Co., Peoria, Ill.; Jay Waldeck, American Steel & Wire Co., Cleveland; Ross Watson, Chicago Pneumatic Tool Co., Cleveland; J. Edward Weit, Atlas Bolt & Screw Co., Cleveland; Edgar F. Wendt, Buffalo Forge Co., Buffalo; Wm. C. Wilson, American Institute of Weights and Measures, New York; Arthur Wood, Jones & Laughlin Steel Co., Pittsburgh; George R. Woods, R. S. Stokvis & Zonen, Ltd., New York; C. A. Yost, Lucas Machine Tool Co., Cleveland; J. M. Zang, Cleveland Metal Products Co., Cleveland; F. Zollinger, Timken-Detroit Axle Co., Detroit, Mich.



# Light on the American Shipping Problem\*

Lines on Which It May Be Worked Out  
Gradually to a Solution—Steel Corporation  
Head Suggests Some Practical Moves

—BY JAMES A. FARRELL—

THE future of our merchant marine development is at stake and its present position is the outcome of haphazard efforts to deal with a problem the requirements of which necessitated from the beginning a settled policy and a well defined purpose. Having inherited a legacy, which has brought about an almost complete paralysis of governmental as well as individual effort to obtain for American ships a share of our sea-borne commerce, it is necessary to consider the underlying forces and phenomena which have caused this condition, one somewhat analogous to our Government's identification with the operation of our railroads. Although it is unlikely that anything effective can be accomplished for the time being, during the present world wide depression, for which there is no precedent in the history of shipping, yet it is the duty of all Americans to prevent the elimination of our over-seas fleet from the world's carrying trade. The problems are distinctly national and require co-operation, as not only the Government but private owners as well are concerned. Among these problems is equality of opportunity in competition, since, while the Shipping Board controls about four-sevenths of the fleet there remains about 4,000,000 d.w.t. of ocean-going tonnage owned and operated by private capital.

## Steel Ships Well Built

The signing of the armistice on Nov. 11, 1918, found us with a fleet of 16,000,000 d.w.t. built and under contract to be delivered, constructed largely on the cost plus system, which encouraged inordinate costs and put a premium on high overhead expense. Aside from their cost, the steel ships were well constructed and with a few exceptions compare favorably with the work of the best builders in any country. While we may only surmise what will ultimately become of the wooden ships which were built as a result of the dictates of military necessity, and in response to the appeal from our associates for ships and more ships, the fact remains that our steel ships are fine examples of the skill of American mechanics and with a broad and enlightened maritime policy should prove useful in shaping the future of American shipping. A plan which will enable American ships to compete on terms of equality must be formulated.

Efforts were made after the armistice to induce the Shipping Board to sell a large portion of the fleet to foreigners (Congress having enacted a law forbidding the alienation of American vessels without the consent of the Shipping Board). For a period extending into the year 1919, an opportunity existed to dispose of a large portion of the fleet at prices bearing a fair relation to a moderately depreciated cost. At that time our competitors abroad had no advantage in cost of building and only a slight advantage in cost of operation.

## Government Missed Its Market

Not having taken advantage of this opportunity, the Government "missed its market" and it is estimated lost a chance to realize at least \$800,000,000, being the difference in the market value of the tonnage of steel ships which could have been sold at that time and the appraised value to-day. Meanwhile foreign governments were obtaining large loans in the United States, a portion of which was expended in the acquisition of foreign tonnage and in the placing of orders for new tonnage in other countries. Materials entering into the construction of ships were, as always, considered a

commodity of commerce and were exported, but not so the finished ship; otherwise shipbuilding would have been stimulated and employment given our labor. Later when the embargo was lifted, conditions had changed and opportunity had vanished.

While the valuation that must ultimately be placed on the ships will bear no relation to their original cost, it is questionable whether under present conditions any considerable tonnage could be sold except at a sacrifice which is not warranted, pending a revival of business in foreign markets, and considering the nominal cost of maintenance when laid up—and further considering that the world is over-supplied with tonnage and that there will be no demand except for certain special types until the present supply is absorbed.

Any revival in the world's trade should find us with the necessary mechanism to protect our exports and facilitate their expansion. We should have ready also as a national security an adequate naval auxiliary in case of need. The necessity of a merchant marine to supplement our navy was realized at the outbreak of the late world war and the United States should never again be placed in the position it was in at that time, when it found itself without sufficient ships to support its army and navy, aside from the necessity from an economic standpoint of maintaining our trade with neutral markets.

## Many Readjustments Necessary

Readjustment of values is obviously necessary due to the fact that the present involved status of shipping is the outcome of unrestricted development begun in the emergency of war and expanded by continued exigencies, regardless of price or deliberate thought of subsequent conservation of values. Approximately 2300 ships were so provided, of which 800 were put in service immediately following the armistice under a so-called agency agreement whereby the Shipping Board paid a fixed commission to the operator without risk or liability to the latter. As will be remembered, ocean freights were abnormally high and the unusually liberal terms induced many to enter the business whose inexperience brought about a riot of extravagance in all branches of the shipping industry and for this we are now paying the penalty in inflated charges for ship repairs, wharfage, stevedoring, fuel, supplies, crews' wages, etc.

With the background of the forces and factors involved in the situation, serious consideration must be given to the problem of maintaining our merchant marine. It hardly requires much reflection and calculation to figure that even with a temporary improvement in ocean freights the world's idle tonnage cannot be absorbed under three years. All maritime nations are affected. Counting England, France, Italy, Belgium, Japan and the Scandinavian countries, approximately 7,000,000 tons of carrying capacity is laid up out of a total of 60,000,000 tons (of which 5,000,000 tons is still under construction). In normal times, had there been no interruption to the natural growth of trade, this tonnage would be largely employed; but seeing that an economic metamorphosis has taken place as the result of the war, with the ordinary processes of trade unbalanced, it will require time to build up the economic structure.

## Suggests International Shipping Conference

It might serve a useful purpose to ourselves and to the world to bring about an international conference of the maritime nations to stabilize the shipping situa-

\*A paper presented at the National Foreign Trade Convention, Cleveland, May 6, 1921.

tion, on the theory that one part of the world cannot be crippled economically while the rest is prosperous. The finances of Europe and other countries are in a chaotic condition, while the United States is prosperous. An international laying up program on the basis of relative percentages of tonnage owned and conference rates on a parity from all countries would largely solve the problem by limiting the total tonnage of ships in employment to the cargo available. While this plan would appeal to practical ship owners the world over, intervention on the part of a maritime league of nations would probably surround this economic principle with a maze of entanglements which would destroy the main purpose to be achieved; yet the accomplishment would make a practical contribution to the promotion of peace.

#### Let Americans Support American Ships

There are many importers and exporters in this country whose desire does not seem to be to support an American merchant marine on an equal basis. It would be no great hardship for the majority of the American importers to pay a fair rate on their imports, nor for some of the American exporters of bulk commodities to sell their goods on a c.i.f. basis, thereby controlling the ocean freight and allowing American ships a reasonable freight rate. The great mass of foreign tramp tonnage will regulate the ocean freight rates for American steamers as long as our producers sell their products f.o.b. American shipping ports. This is not an appeal to patriotism but an appeal to reason, since our producers cannot know their markets nor the laid down parity of their competitors' prices unless they include in their sales price the cost of their goods, the insurance and ocean freight to ultimate destination. It is difficult enough to maintain our ships on the seas against propaganda and disparagement largely by our own people, without forcing rates to a ruinous level by unfair means. It is up to American producers to support our shipping in this crisis. Our merchant marine is an all-American proposition; co-operation should take the place of merciless competition. Producers of all kinds of materials of the factory and soil, as well as capital and labor, should not only realize the possibilities of our merchant marine but the necessity for its maintenance and that in supporting it they are adding to our commercial prestige and national welfare. The maintenance of regular direct lines of combined passenger and freight steamers between the United States and foreign ports is necessary for prompt carriage of the mails, express matter and merchandise. American travelers should give to American passenger vessels the same consideration that shippers should extend to the cargo carriers.

#### Too Many American Routes

It is time to recognize the fact that the policy of the Shipping Board since its inception, of endeavoring to build up trade routes from every Atlantic, Gulf and Pacific port to practically every port in the world, is expensive and impracticable, despite the clamor that the abandonment of this policy would bring forth in certain localities and the political pressure that would be brought to bear. It is quite natural for the civic spirit of a community to be manifested in a desire to have a multitude of steamship services but it is not sound business unless cargo is obtainable at the ports of loading.

The Shipping Board, as owners of the steamers, when assigning steamers to loading brokers to operate for their account on a designated trade route, should stipulate a trade name under which the line will operate, this to be the property of the Shipping Board; and should they eventually sell these steamers operating in this trade, the trade name should go with the line. It is a well known fact that some Shipping Board operators have obtained tonnage to operate in special trades with a view to keeping these trades in their hands until such time as foreign lines and owners are in a position to supply tonnage. In some notable instances American owners obtained allocation of Shipping Board vessels until such time as they could buy or charter foreign ships and operate them on routes in which American ships were employed. An in-

stance of this, and a curious commentary on the economic results of the war, is the recent appearance of former Hansa Line steamers in the trade from the United States to India. The German ship owners having been reimbursed by their Government for ships lost or taken over by England under reparations, are now operating their former steamers under British registry, the steamers having been sold by the British Government at one-third of their original cost.

#### Policy for the Near Future

Until trade revives and opportunity exists for obtaining a fair sales price, an early retirement of the Shipping Board and liquidation of its shipping business seems impracticable; but a partial solution of one of the difficulties confronting the Shipping Board is to continue to lay up a considerable portion of their tonnage, and in line with the timely slogan "Less government in business, more business in government," withdraw from all but supervision activity by chartering the steamers to reputable and experienced operators, either on a bare boat basis or on time charter, allowing the charterers the option of purchasing the steamers when conditions improve.

The claim is made and justly that the cost of American ships must reasonably approximate the costs of their competitors and that capital charges must be substantially equalized with those of our competitors. The fact remains that while a considerable number of ships built abroad have been sold under stress of necessity at less than half the cost of reproduction, as in the case of ex-enemy ships sold by Great Britain, the great bulk of the world's tonnage built during the war fairly approximates the average cost of our own fleet. Again it is said that operating costs must be approximately equal to those of our competitors. Leaving wages paid in American ships out of consideration, does the foreigner, loading from American ports, obtain any lower prices for fuel, ship repairs, wharfage, harbor dues, stevedoring, supplies and stores in United States ports than do our own ships?

#### Hampering Shipping Laws

The main factor in determining whether we can compete successfully lies largely in our shipping laws. The latter are not only strangling our ocean-going ships but are affecting our carriers on the Great Lakes. It may be tacitly assumed that our ships must be manned by competent crews sufficient in number to operate economically and safely, and that American seamen should enjoy the best possible conditions, receiving in wages reasonable return for service performed. But it must be equally obvious that provisions of law which require American vessels to maintain larger crews—65 per cent of whom must be licensed men—than is the case with foreign vessels and to carry as the engine crew 30 per cent more men than the steamships of any other nation necessarily subject American vessels to a very serious disadvantage, estimated at 5 per cent on the capital investment. The compulsory advance in each foreign port of call of half wages earned seriously affects the working of ships and leads to expensive delays. The burden of these laws should be removed in the interests of the seamen as well as the ship owners. Their removal would appreciably improve our position and make it unnecessary to discriminate against our competitors by legislation which they are in position to adopt similarly against American goods and vessels in foreign ports, since of necessity we must have return as well as outward cargoes. Congress has declared in favor of a policy of private ownership "as soon as practicable," but it is not practicable to sell the ships in the United States in advance of legislation which will make it possible to operate under conditions which are sure to prevail as soon as the abnormal situation resulting from the war comes to an end.

It seems, therefore, that the problem of the moment is the formulation of measures which will put American ships and American shipbuilding upon such a basis that it can compete successfully with the ships of other nations. To sell the fleet, which cost the tax payers of

(Continued on page 1279)



## THE RUHR REGION OF GERMANY



THE shaded area of the accompanying map shows the extent of the coal area of the Ruhr region, containing a coking quality of coal which had so much to do with the establishment of the strong iron and steel plants in this section of western Germany. To give further light on the economic importance of the threat of the Allies to occupy this section, below is listed the companies operating plants in this region and also the companies which have coal holdings there but with their plants elsewhere. The information is authentic up to the beginning of the war, data not being available on the new plants or expansion since that time.

## Companies Operating Steel Plants in Ruhr Region

Bochumer Verein, Bochum.  
Deutscher Kaiser (Thyssen), Mülheim (east of Duisburg).

Hamborn and Bruckhausen (both north of Ruhrort) and Dinslaken.  
Deutsch-Luxemburgische B. & H. A. G., Dortmund, Mülheim.  
Gelsenkirchener B. A. G., Gelsenkirchen, Duisburg.  
Gutehoffnungshütte A. G., Oberhausen, Sterkrade, Gelsenkirchen.  
Haspe Eisen & Stahlwerk, Haspe.  
Hoesch Eisen & Stahlwerk, Hoesch, Dortmund.  
Krupp (Friedr.), Essen, Rheinhausen (opposite Duisburg), Annen (at Witten).  
Mannesmann, Gelsenkirchen.  
Phoenix, Hoerde, Dortmund, Duisburg, Hamm.  
Rheinische Stahlwerke, Duisburg, Melderich (north of Ruhrort).

## Companies Owning Ruhr Coal Mines but with Steel Plants Elsewhere

Georgs Marienhütte, Osnabrück.  
Haniel, Düsseldorf.  
Lothringer Hüttenverein, Algrange, etc.  
Roehling, Voelkingen (Saar), Thionville (Lorraine), etc.  
Stumm, Neunkirchen (Saar), Uckange (Lorraine), etc.  
De Wendel, Hayange, Moyeuvre (Lorraine), Jœuf (France), etc.

## Modification in Scrap Classification by Railroads Suggested

CHICAGO, May 9.—Hearings on scrap classification which are being held in various cities of the country by the Consolidated Classification Committee of the railroads, have brought out a number of suggested modifications in the description of scrap designed to make it broad enough to include all materials generally regarded and classified as scrap and bought as such by consumers. The present general rule in the three railroad classifications is as follows: "Ratings apply on scraps and pieces of iron and steel having value for remelting purposes only." The objection raised to this description is that it prevents the application of the scrap rate on materials which are not remelted, but are rerolled or reheated and changed in form and purpose as completely as in melting. A broader definition of scrap is, in effect, implied in a number of commodity tariffs in certain parts of the country which extend the scrap rate to specific exceptions to the general rule, such as axles and rails. It is the view of scrap dealers that the general description itself should be properly modified. As was noted in THE IRON AGE of May 5, page 1162, the description suggested by the National Association of Waste Material Dealers is: "The rating on iron and steel scrap applies on material that is of value only for remelting, rerolling and reheating purposes."

In the opinion of some of those interested in the subject, this description warrants criticism because it limits the application of the scrap rate to materials which have a value only for purposes for which scrap is generally used. It sometimes happens that material may be sold for use as scrap and still have a value for other purposes, and the shipper has not the facilities

to destroy that value by breaking, burning or cutting it. At the same time, it is recognized that the railroads are entitled to protection against abuses which might arise from a ruling which would be so broad as to permit a purchaser to enjoy the scrap rate on shipments which he later repairs and sells as second-hand articles.

For the purpose of obtaining for the dealer a scrap rate on all legitimate scrap shipments and of providing safeguards for the roads to protect them from abuses under the classification ruling, A. L. Dreher, traffic manager Hyman-Michaels Co., Chicago, has submitted the following suggested rule:

Ratings apply on scrap iron or steel, constituting any or all iron and steel articles, material, pieces or scraps, which at time of shipment are declared to have no recognized commercial value other than that of the elementary metal from which manufactured, or which are unusable or worthless for the recognized uses for which manufactured or sold by the original manufacturers and which are not again to be used or sold for any purposes other than for remanufacture by due process of remelting or rerolling.

Coupled with this general rule, Mr. Dreher suggests exceptions for material which is shipped to dealers to be scrapped:

Agricultural implements, boilers, engines, machines and machinery which, at time of shipment, are declared to be of no recognized commercial value for use or sale as such, may be billed at rates provided for scrap iron or steel. However, should the material appear to have a value for other than remelting or rerolling purposes, it must be billed at rates provided therefor, and the charges reduced to the basis of the scrap iron or steel rates, providing the material is broken, burnt, cut or otherwise made useless, excepting for remelting or rerolling purposes, by the consignee within 96 hours after placement for unloading, in the presence of a carrier's agent.

## OHIO FOUNDRYMEN

## Uniform Cost Accounting, Pig Iron Contracts and Labor Problems Discussed

The first general meeting of the newly organized Ohio State Foundrymen's Association was held at the Miami Hotel, Dayton, Ohio, on May 3. Out of a total membership of 74 companies, 130 representatives were present, and a very interesting "get-together" session was held. The chief discussions centered about a uniform pig iron contract and a uniform cost accounting system. Business conditions also came in for consideration, and a discussion of wage scales paid in different cities showed that in the majority of these reductions had been made since the first of the year. In regard to operating conditions, reports from representative cities showed that an average operation of about 25 per cent of capacity is being secured throughout the State.

Louis Weber, Elmwood Castings Co., Cincinnati, president of the association, outlined its aims and stated that its organization was not for the purpose of crushing labor unions, but to have an association where foundrymen can meet and discuss problems arising from time to time in regard to business conditions, shop methods, and other things of vital importance to the industry. He urged upon the members the importance of adding to the membership, and said he confidently expected that with the enthusiasm shown in this respect they would have 50 per cent of the 400 foundrymen in the State enrolled before the next quarterly meeting.

## Work of Last Three Months

Sam Powell, Jr., Hamilton, Ohio, executive secretary, reported on the work done during the past three months. This consisted of a series of bulletins informing members of important happenings in the industry, and securing of any special information requested by individual members. The secretary's office has recently started to issue a trade barometer and while this has not yet been developed to its fullest extent, it is hoped that within a few weeks it will have been perfected. Mr. Powell said the importance of this statistical service cannot be overestimated, and he urged upon the membership to give their full co-operation in forwarding this information to the secretary's office.

In regard to a uniform pig iron contract, it was reported to the association that this matter will be taken up with a committee of the National Association of Purchasing Agents, which has already discussed it, but has not made much progress. The Purchasing Agents' Association will be pleased to have the views of the association on this matter, in order that it may be able to devise a contract which would be equitable to both buyer and seller, as it was felt that the contracts as existing in the past were too one-sided.

## Labor Questions

At the afternoon session addresses were delivered by Sam Powell, Jr., on Labor; Ernest F. DuBrul, general manager of the National Machine Tool Builders' Association, Cincinnati, and E. T. Runge, of the E. T. Runge Cost Co., Cleveland.

Mr. Powell declared the labor situation at the present time in the foundry industry is an interesting one. The program of vacillation adopted by the Molders' Union has resulted in the union being enabled to keep a number of its men employed at the old scale of wages, when economic conditions called for a readjustment. Reports received indicated that on April 1 there were strikes in 109 cities throughout the country. The open shops have been able, without much difficulty, to get a readjustment, and it is currently reported that the International Union has decided that local unions will be allowed to negotiate agreements with employers taking into consideration conditions peculiar to each district throughout the country. In regard to radical propaganda being circulated, Mr. Powell thought that employers were partly to blame, inasmuch as they have not been active enough in getting industrial economics

over to their men. The cost of production is a very pressing one, and the speaker instanced a number of concerns in the State who are being continually underbid on foreign orders by German manufacturers who are, in addition to low prices, offering inducements in the form of long term credits.

## Mr. DuBrul's Address

Mr. DuBrul spoke on the value of associations. He said that an association of this kind was a cold-blooded business proposition, and the man who does not improve his business through such an organization was in a bad way. After all, business is only one big co-operative machine, and price is its great regulator. He said that 87 per cent of the people entering into business fail for various reasons, the chief one of which was incompetence. It was unfortunate that too many people go into business without understanding business economics, but it was doubly so that too many people were unwilling to learn, and he felt sure that associations, if properly conducted, would be a great help in correcting this condition. It was the experience of business that most failures occur through poor financing, and in this connection the speaker had a few words in regard to cost accounting. In closing Mr. DuBrul stated that any organization that does not start in as soon as possible after its inception with a statistical service is missing one of the greatest opportunities that presents itself to serve its members. The business of the world moves in cycles, and a study of conditions by means of statistics of the past will be of incalculable benefit in charting a proper course for the future.

E. T. Runge, of the Runge Cost Co., Cleveland, gave an explanation of a simple but effective method of figuring foundry costs. In this connection he asked the members to figure out their costs on a typical casting, and when the replies were tabulated it was seen that a difference of 5c. per lb. was shown between the low and high figures. This probably accounted, in the opinion of the speaker, for the fact that some foundries were being filled up with unprofitable work. He said too much stress cannot be laid on the problem of correct cost finding methods, and by a series of charts the speaker explained how this can be done without adding more than one day a month or 16 minutes a day to the working time of the present accounting department.

## Pittsburgh Foundrymen's Association

"Designing the Foundry to Function as a Machine" is the subject of a talk to be given at the regular monthly meeting of the Pittsburgh Foundrymen's Association, at Hotel Chatham, Pittsburgh, Monday evening, May 15, by H. M. Lane, president H. M. Lane Co., Detroit. The paper will be illustrated by lantern slides. At this meeting of the association, officers for the year will be elected and the following have been suggested by the nominating committee: President, F. H. Clay, Allegheny Steel Co., Brackenridge, Pa.; vice-president, Samuel B. Cuthbert, Edgar Thomson works, Carnegie Steel Co., Braddock, Pa.; treasurer, Wm. J. Brant; secretary, Bayard Phillips, Phillips & McLaren Co., Pittsburgh; executive committee, John Field, Union Steel Casting Co., Pittsburgh; John W. Guay, Ft. Pitt Steel Casting Co., McKeesport, Pa.; A. J. Hartman, United Engineering & Foundry Co., Pittsburgh; Thos. A. Wilson, Pittsburgh resident manager, Rogers, Brown & Co., and Wm. B. Robinson, Pittsburgh district advertising manager, THE IRON AGE.

A development in connection with the etching of nickel and its alloys, reported by the Bureau of Standards, is the use of concentrated hydrochloric acid. This appears to be the best reagent for producing contrast without pitting of the surface that has yet been tried. It is rather hard to etch nickel and ordinarily the metal pits considerably and a plain etched pattern, that is, one in which there is no contrast between different grains, is the usual result. Etching in concentrated hydrochloric acid for a considerable period, say one hour or more, gives very satisfactory results.



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## Steel Mill Wages and Other Wages

Reduction by the United States Steel Corporation of the wages of its employees will drop the average daily earnings, reported for 1920 at \$6.96 (exclusive of the sales and executive force), to about \$5.57 per man. Official pronouncement of the secretary of the American Federation of Labor that this reduction has no justification should be studied in the light of figures for wages in other lines, and with relation to the steadily falling cost of living.

Average weekly earnings in New York State, of workers in iron and steel mills, are reported for March at \$32.03, which would be \$5.34 per day for a six-day week—correspondingly less as the week is stretched to seven days. Other industries are reported as follows, all based on six days per week:

	Per Week	Per Day
Structural and architectural iron work.....	\$31.13	\$5.19
Sheet metal work and hardware.....	26.34	4.39
Firearms, tools and cutlery.....	23.93	3.99
Automobiles, carriages, airplanes.....	32.18	5.36
Cars, locomotives, railroad repair shops.....	35.31	5.89
Boats and shipbuilding.....	36.36	6.06
Brass, copper, aluminum, etc.....	24.23	4.04
The entire metal group, average.....	29.16	4.86
All factory workers, average.....	26.97	4.50

Common labor is cut by the Steel Corporation's latest move from \$5.06 to \$4.05 per day. It will still be 102½ per cent above the 1915 figure of \$2 per day. Retail food was "up" in March only 56 per cent above June, 1915, according to the New York State Industrial Commission. It has fallen to that from an excess of 119 per cent last summer. Thus more than half the excess food cost has been wiped out, while steel mill labor loses only one-third of its excess over 1915 wages. The same amount of food which cost the wages of 8 hours in 1915 required 6 hours 55 minutes last summer and only 4 hours 56 minutes last March. That amount of food will require 6 hours 10 minutes' work after May 16, provided food cost does not fall further—but it is still falling steadily.

The description on other pages of a French process for converting purple ore or pyrites cinder into pig iron in an electric furnace recalls the campaign about 25 years ago of a large sulphuric acid producer for the sale of heavy accumulations of this material to blast furnaces.

While the French process is interesting it is not applicable to American cinder, because a large part of it is of a composite nature. Where the purple ore comes from pure pyrites the problem is simpler. In the eighteen-nineties there were small mountains of "blue billy," so called, in the various yards of the American company referred to above. No serious attempts had been made to get rid of it, apart from experiments to make an iron oxide paint. The grades of cinder were several, depending on the ore burned, and some of them had appreciable quantities of copper, zinc, lead and even gold and silver. The efforts to induce pig iron makers to use this cinder in their regular charges were so successful that the large accumulations were finally disposed of. The common practice was to mix the cinder in small quantities with the regular ores. This practice has continued in various localities, so that now a once worthless by-product is a valuable blast furnace raw material.

## South America As a Buyer of Steel

Closer trade as well as friendly political relations with the Central and South American republics have been a signal feature of the new Administration's foreign policy so far as distinctly developed. Much has been said about this, but its importance, so far as the steel industry is concerned, has not been adequately emphasized.

Our foreign trade statistics show that in the second half of last year South American countries took nearly twice as much American steel per month as they took in 1919, and that in 1919 our steel exports to those countries were about double those of 1913. The approximate steel exports in 1913 were 22,800 gross tons per month; in 1919 they were 43,400 tons per month, and in the six months from June to November, 1920, the average was 74,450 tons per month. A large variety of products made up these shipments.

By contrast, the course of Great Britain's steel trade with South America has been most unsatisfactory, the increase of exports from this country having been at the expense of Great Britain and all other European producers. In 1913 shipments of British steel to South America were 27,400 tons per month, or slightly in excess of those from the



United States. In 1919 they were but 3400 tons per month, and in the second half of 1920 the monthly average was 10,460 tons.

Confronted as American steel exporters now are with unfavorable financial and trade conditions and with the possibility of competition from Germany, which before the war did a large business with South America, the need of the right attitude at Washington toward our customer nations on the south is evident. Emergency tariffs and permanent tariffs should be framed with full regard to their effect upon our trade relations with other countries; and just now the effect of the pending emergency tariff upon South American trade should have serious consideration. There is a widespread feeling among business men, who take the long view rather than the opportunist view of the questions involved, that the possibilities of mistakes in enacting emergency tariff laws are more than have been appreciated in some quarters at Washington. On the whole tariff movement now on foot, the voice of American business men, protectionists as well as revenue tariff advocates, is for moderation. The aspects of our trade relations with foreign countries have changed greatly since the last protective tariff measure was passed, and to hark back to old schedules now, or to old ideas of schedule making for any reason, or fancied reason, of political expediency has in it far-reaching possibilities of harm.

### Depression Without Panic

What is really a notable feature of the industrial and financial history of the past twelvemonth is that there has been no "panic." There were those who predicted a panic, others who asserted that there were conditions to produce a panic if the Federal Reserve system had not been established, and still others who believed that even with that system in operation in the prescribed form there would be a panic if the Federal Reserve Board did not take full precautionary measures. Undoubtedly there were conditions last year that in all probability would have produced a panic if the old banking system had been in operation.

What is commonly called a "panic" is of course a financial panic. A sudden change in conditions that does not produce hoarding of money, disappearance of credit and the failure of firms apparently quite solvent is by the accepted terminology a crisis, not a panic.

Doubtless many people feel that we have rather a new phenomenon in American business, an industrial depression without a panic. That is not as new as is frequently assumed. For one reason or another men are disposed to do two things in this connection, to couple an industrial depression with a panic, even if they have to strain some point to do so, and to forget depressions not accompanied by panics as soon as they have disappeared. The coupling of the financial depression of the eighteen-nineties with the financial panic in May and June, 1893, is decidedly anachronistic. The panic was caused partly by the gold situation, partly by an industrial depres-

sion that had already begun, and partly by influences tending to bring about both a depression and a panic. One may even pursue farther the effort to combat the linking of panic and depression as cause and effect by arguing that if the panic of October, 1907, had not occurred there would have been nevertheless a depression of some extent. A panic, of course, increases the distress of a depression period.

Outside of a few who have their particular hobbies, the accepted view is that the present depression was caused chiefly by the high prices of last year. There has been, also, a phenomenal and altogether abnormal advance in wage rates, measured by performance, adding in a very marked degree to the prices of all commodities. In previous industrial depressions that factor has been scarcely noticeable. This time it is very prominent.

Having a depression without a panic, we now have opportunity to study how the recovery will proceed, whether it will be more or less rapid. A financial panic causes some business failures that one may say ought not to have occurred and in that respect recovery is impeded. Those who feel that the chief requisite to speedy recovery from the present depression is readjustment in wage costs and commodity prices may hold that the easy financial position of so many men and business concerns will make them less ready to readjust their affairs than they would have been if placed in financial difficulties. Certainly it is to be observed to-day that some wage rates and some commodity prices show much less tendency to come down than others have shown. It would be hazardous to predict that there will be either a slower or a more rapid recovery from this depression by reason of there having been no financial panic, but it seems reasonable to believe that, apart from the unprecedented European complications, there is at any rate an opportunity for a much more rapid recovery than otherwise would have been the case.

### Steel Direct from the Ore

Rather sensational claims were published in the daily press on Monday regarding a new steel-making process in France, by which steel will be produced direct from the ore, making France independent of coke, imported or otherwise. It is known as the Basset process which, by the use of low-grade French coal in the powdered form, reduces the ore in special furnaces in the presence of pre-heated air with which the coal is mixed. The use of only the theoretical amount of carbon together with the high temperature is claimed to effect rapid elimination of the oxygen in the ore and the production of steel in five hours, according to the press reports.

A brief account of the Basset process appeared in THE IRON AGE, Sept. 9, 1920, but details were lacking. The statement was made then that it had been tried commercially on a small scale with success, but nothing has appeared since in the technical press, domestic or foreign, regarding it. There have been many announcements of similar processes, none of which have been heard from

again. A trial of the Basset process on a large commercial scale is necessary to demonstrate its "epoch-making" worth.

It will be exceedingly difficult to displace the blast furnace by any direct process, particularly in the United States. The production of pig iron, and also steel, direct from the ore in electric furnaces has been carried out in Canada and in Sweden and Norway. Direct processes of the nature of the Basset, however, generally involve the production of an iron sponge in some stage of the operation. This is very difficult material to handle and its successful conversion into steel usually involves the use also of an electric furnace in which it may be melted and purified of impurities originally in the ores.

The Basset process may overcome this and other difficulties. In any event the installation of the reducing apparatus alone may be so expensive as to preclude its economical use except under unusual conditions. It is not likely that the present established process of duplexing or triplexing after the blast furnace has done its work will be superseded for many a day.

The serious depression into which the British steel industry has fallen is emphasized by the foreign trade data for March, published in last week's issue of THE IRON AGE. March exports of British iron and steel fell to the lowest figure in many months, despite the fact that the coal strike did not start until April. The exports were only 149,847 gross tons, or nearly one-third less than the 1913 monthly average. They were even less than the 1919 rate. To find a lower figure it is necessary to go back to February, 1919, when exports were 109,939 tons. Still more significant, however, are the import data which in March showed receipts of 179,610 tons of iron and steel or close to the pre-war rate of 195,264 tons in 1913. Of equal interest are the coal statistics. Previous to any strike, coal exports for the first quarter of this year had been less than one-third of those in the first quarter of 1913—or 5,397,000 tons against 18,239,000 tons. The extremely unfavorable concurrence of declining steel exports and increasing imports has been intensified by the coal strike, and there is nothing in the general industrial situation to indicate an early recovery in British steel production.

## CORRESPONDENCE

### Machine and Sand Cast Pig Iron

*To the Editor:* It seems that Mr. Dovel, in April 21 issue of THE IRON AGE, worked pretty far afield in his arguments covering "Why Foundry Iron Should Be Sand Cast." He admits that for economic reasons the manufacturers of steel prefer and insist on machine cast basic pig iron as compared with sand cast iron, yet does not admit that for the same reasons gray iron foundrymen prefer machine cast iron. In the first instance, why should a foundryman pay pig iron freight rate on sand when he is able to secure an iron free from this "dead expense"? Also why should he desire to burn more coke and use more limestone to fuse and flux sand and to heat slag? Regardless of sand allowance made in the purchase of sand cast iron the same

comparative saving ration exists in favor of melting machine cast iron, amounting to approximately \$1 per ton at the furnace in to-day's market price.

In regard to the so-called extraneous dirt and kish which is said to exist as an inclusion in machine cast pig iron, I believe, on reflection, Mr. Dovel will agree that any kish which becomes incorporated in the iron loses its identity as kish and becomes known as graphitic carbon—the name kish being applied to carbon which becomes entirely separated from the iron and either forms with the conglomerate scoria which sometimes attaches itself to tops of pigs and runners, or else floats in the air of the cast shed. However, on remelt in the cupola this scoria enters the cupola slag, because its low specific gravity will not permit it to be retained in hot, fluid cupola metal. In fact the dissociated kish will be blown from the cupola by the blast. Any extraneous dirt would seek the same disposition in the cupola slag. If, for any extraordinary reason, dirt should become entrained in machine cast or sand cast pig iron, it would immediately become released on remelt of the iron in cupola on the same principle that the "burned in" sand on sand cast pig iron becomes released on remelt and finds its way into the slag.

The comparison made by Mr. Dovel between car wheel metal and machine cast pig iron does not jibe with metallurgical practice. There is a vast difference between the two metals, car wheel metal being low in silicon (0.60 to 0.65 per cent) and high in sulphur (0.11 to 0.13 per cent), whereas machine cast pig iron is supplied within identical silicon and sulphur ranges under which sand cast pig is sold. However, this statement is not meant to convey the idea that car wheel metal is not first-class. As a matter of fact it is high grade, and the only reason its use is restricted in the gray iron foundry to small percentages in mixtures is due to the fact that the silicon being low and sulphur high, the metal mix would have to be siliconized by using ferrosilicon or silvery iron and desulphurized by the use of ferromanganese. These alloys cost money; therefore the foundryman prefers to accomplish the same purpose by purchasing pig iron which carries the required silicon and manganese to balance these elements in a mixture.

The cardinal point which Mr. Dovel stresses—that of the controlling factor of carbon—is eminently correct, but the weight of his argument would be directly in favor of machine cast pig iron if it were true that the carbons maintained the same ratio on remelt as exists in the pig. For example: a 2.25 per cent silicon sand cast pig iron showing 3.05 per cent graphitic carbon and 0.50 per cent combined carbon would not be as strong as a machine cast pig iron of 2.25 per cent silicon, 2.75 per cent graphitic and 0.80 per cent combined carbon. These are practically the ratios of carbons as shown by the two kinds of iron.

However, luckily for sand cast pig iron, this phenomenon does not exist; for when either sand cast or machine cast pig iron is remelted in the cupola there is a readjustment of the combined and graphitic carbons to the degree sought by the cupola melter. That is: the 0.50 per cent combined carbon in sand cast iron may be raised to 0.80 per cent, if desired, or the 0.80 per cent combined carbon in machine cast iron may be lowered to 0.50 per cent, if desired. The carbon ratio adjustment is entirely controlled by proper mixing of metals, pouring temperature and rate of cooling. Molten metal at its higher temperatures contains carbon in solid solution. That is: a solution of iron and carbon. The rate at which the metal is allowed to cool determines the amount of graphite which separates out of the solution as pure carbon and the amount which is combined with the iron, and known as combined carbon. The carbon which combined with iron supplies the strong cementing qualities which produce strong castings, and the carbon which separates out as graphite flakes tends to break up continuity of metal matrix, thereby weakening the whole structure of the casting.

Mr. Dovel admits that the foundryman is entitled to a more uniform size of pig iron and suggests that automatic hammer breaking device supplies the need. The process is a great improvement over hand breaking method, but it remains a fact that cold broken pigs,



sows and runners can never be made as uniform in size as liquid molded pigs. The writer admits that the foundryman is entitled to a uniform size of pig; as a matter of fact he is entitled to more. He should not only have a pig of dependable uniform size; but should have a clean pig iron with chemical analysis as to silicon, sulphur, phosphorus and manganese uniform throughout the mass of metal so that he may feel assured in calculating mixtures that all the iron is representative of the chemical analysis submitted. These features are combined in a machine cast iron—made possible by thorough agitation of molten metal from runner to ladle and ladle to uniform pig mold.

J. W. PORTER,

Vice-president Alabama Co.

Birmingham, April 23.

### No German Owned Factories in Italy

To the Editor: The number of March 10 of your competent journal contains, on page 667, interesting correspondence from Brussels, in which I note some statements as to Italian metallurgical industry that are not exact.

President of the Association of the Italian Metallurgical Industrials, honored and flattered to be honorary vice-president of the American Iron and Steel Institute, I beg to rectify the aforesaid correspondence, stating that Italian industries are not at all dominated by German capital, or not even affected by effective management of German people. Neither at Milan, nor at Brescia, nor elsewhere, as it is stated, do entirely German factories exist.

The Italian metallurgical industry congratulates itself in having capital, management and organizations which are of its own country and struggles laboriously to secure the place which belongs to it in world competition. I would be very grateful to you for publishing this correction.

G. E. FALCK,

Associazione fra gli Industriali Metallurgici Italiani.  
Milan, April 23.

### College Foundry Records

To the Editor: The writer noticed in one of your recent issues of THE IRON AGE a compilation of data relative to the foundry of the Purdue University. We have here in our foundry, which we use for instruction purposes, a 24-in. cupola and I am sending you the results that we have obtained for the first half of the current year. We think that we have a very good record, more especially so in that the students themselves practically made the record and were not over-supervised.

#### College Foundry Performance

	Mich. Agri. College	Purdue University
Number of heats.....	10	14
Metal charged, lb.....	39,000	28,000
Good castings, lb.....	23,112	15,684
Poor castings, lb.....	4,584	954
Sprues and risers, lb.....	5,515	7,466
Surplus metal, lb.....	2,757	1,596
Loss in melting, lb.....	3,068	2,400
Percentage good castings.....	60	56

PHILIP J. BAKER,

Metallurgical Engineer, Michigan Agricultural College,  
East Lansing, Mich., May 4.

### British Iron and Steel Output in April

LONDON, ENGLAND, May 10 (By Cable).

Production of pig iron in Great Britain in April amounted to only 60,300 gross tons and that of steel ingots and castings was 68,400 tons, compared with 385,500 tons of pig iron and 357,600 tons of steel in March, with 463,600 tons of pig iron and 483,500 tons of steel in February and with 642,100 tons of pig iron and 493,400 tons of steel in January. The April figures also compare with a monthly output in 1920 of 667,325 tons of pig iron and 754,733 tons of steel. The extremely low level of production in April has been due to the lack of coal and coke because of the coal strike. The year's production to April 30 has been 1,551,500 tons of pig iron and 1,402,900 tons of steel ingots and castings.

### Cincinnati Foundry Controversy Temporarily Adjusted

A committee representing the Iron Molders' Union discussed with members of a committee of the Foundrymen's Association, Cincinnati, the question of wages for the coming year, and in order to break the deadlock existing at the present time, a tentative scale of \$6 for eight hours' work was agreed upon. This compares with the old scale of \$7, incorporated in the agreement which expired Feb. 1 last. The agreement reached last week is only a temporary one, to be effective for a period of three months, and can be terminated on 30 days written notice by either party. The settlement of the wage question means that Cincinnati jobbing foundries will at once resume operations, and while full operation will not be possible immediately, it is expected that at least three heats a week will be secured.

### Decrease in Steel Corporation's Orders

Unfilled orders on the books of the United States Steel Corporation April 30 were 5,845,224 tons, compared with 6,284,765 tons on March 31. This is a decrease of 439,541 tons and compares with one of 649,102 tons in March, 639,297 tons in February and 574,958 tons in January, and represents the ninth consecutive monthly decrease reported. On April 30, the corporation had less business on its books than it did in August, 1919. The unfilled tonnage a year ago was 10,359,747, or 4,514,523 tons more. The table below gives the unfilled tonnage at the close of each month, beginning with January, 1918:

	1921	1920	1919	1918
Jan. 31.....	7,573,164	9,285,441	6,684,268	9,477,853
Feb. 28.....	6,933,867	9,502,081	6,010,787	9,288,443
Mar. 31.....	6,284,765	9,892,075	5,430,572	9,056,404
Apr. 30.....	5,845,224	10,359,747	4,800,685	8,741,882
May 31.....	.....	10,940,465	4,282,310	8,337,623
June 30.....	.....	10,978,817	4,892,855	8,918,866
July 31.....	.....	11,118,468	5,578,661	8,883,801
Aug. 31.....	.....	10,805,038	6,109,103	8,759,042
Sept. 30.....	.....	10,374,804	6,284,638	8,297,905
Oct. 31.....	.....	9,836,852	6,472,668	8,353,293
Nov. 30.....	.....	9,021,481	7,128,330	8,124,663
Dec. 31.....	.....	8,148,122	8,265,366	7,379,172

The largest total of unfilled orders was on April 30, 1917, when it was 12,183,083 tons. The lowest was on Dec. 31, 1910, at 2,605,747 tons.

The Bridgeville, Pa., works of the Vanadium Steel Corporation of America closed down May 7 for an indefinite period. Much of the recent production of this plant was for stock.

### The Iron Age and Its Readers

A perusal of the index to contents which is compiled semi-annually for those of our readers who bind their issues gives a measure of the scope and number of the articles appearing in these columns. In the matter of the human element in industry, a count of the headings in the index for 1920 showed 30 articles grouped under "Industrial Relations," with 168 in addition classified under "Labor," 75 under "Management" and 18 under "Wages," not inclusive of the weekly grist of news matter on labor disputes and settlements. Naturally large numbers of articles are listed under the technical classifications of iron, steel and metal-working. For example, over 140 articles were printed on furnaces: 40 concerning electric furnaces, 62 on blast furnaces, 18 on open-hearth furnaces, 6 on heat treatment furnaces and so on. Last year's numbers were unusually complete, as they should be, in respect to articles covering developments in the metal industries of the industrial nations of the globe, in addition to weekly market reports from world centers; and there were 53 articles giving production statistics.

# Iron and Steel Markets

## SOME PRICE CONCESSIONS

### New Business Small and Operations at a Low Rate

#### Concessions on Pig Iron—Ingot Output Falls 22 Per Cent

After one of the quietest weeks of the year in the matter of new orders, the steel industry is more confirmed in the view that for some time it may look for a succession of hummocks and troughs, with no long continuance of either. The more cheerful sentiment of the two preceding weeks did not improve order books to the degree expected.

The Steel Corporation's reduction of 439,000 tons in unfilled orders in April assumes little significance under any interpretation. Counting 40 per cent operation in April, with no allowance for cancellations, rollings would have been 525,000 tons and new orders quite below 5000 tons per day. Cancellations might easily have been enough to require 10,000 tons per day of new business (or less than 20 per cent of capacity) to produce the figures reported.

Consumers' opinion of the resisting power of the recently adopted prices is plainly indicated by their abstemious buying. Pittsburgh already reports concessions in sheet bars, wire nails and hot-rolled strip steel.

The Ford Motor Co., which recently inquired for 4000 tons of hot-rolled strips and 5000 tons of cold-rolled, placed the former at 2.40c., base, Pittsburgh, or \$7 per ton below the April 13 prices. On 4200 kegs of wire nails an oil company is reported to have a bid of \$3 per keg, or 25 cents below the general market. A 2000-ton sale of sheet bars has been put through at \$38, a cut of \$1 per ton.

The above are exceptions to the rule of price maintenance which most manufacturers find not to be difficult in the absence of tempting inquiries.

Steel ingot production in April fell off about 22 per cent from the March rate, the estimated total, on the basis of reports from 30 companies, or 84 per cent of capacity, being 1,213,900 tons, as compared with an estimate of 1,570,900 tons for March. The rate of current production is not far from 40 per cent, though some plants are doing no better than 30 or 35 per cent.

The largest fabricated steel item of the week covers 8400 tons for the new Statler Hotel, Buffalo. Other awards average 450 tons, with a total of 5000 tons. New projects of size, 13 in number, average less than 300 tons each. On most of the lettings plain material was obtained on prices given before the advance to the stabilized level of 2.20c., Pittsburgh.

Railroad car builders are getting almost no business apart from repair work, which in turn has shrunk greatly in six weeks. One western Pennsylvania car company has had no orders for new cars since November.

Outside the recent buying by the Ford Motor Co. the automobile industry has done little in sheets.

An electric railroad requiring a 290-mile overhead electric transmission line, with towers and other suspension members, and rails and rolling stock, from Durban to Pietermaritzburg in Africa, is among promising export inquiries. Another covers 420 tons of hollow drill steel for Africa. Japan wants 6000 tons of 65 and 75-lb. rails.

Reports of recent contracts signed by Mexico for railroad equipment costing millions produced scarcely a ripple in the trade. One alleged contract has been disclaimed by the Mexican Government. In the case of others financing is the problem. A late report is that some 14,000 tons of war rails resold by the Government at Washington have been secured for Mexico through New York dealers. These are 85-lb. open-hearth rails.

Southern iron has declined \$1 on a sale of about 1200 tons at \$22, Birmingham, and price concessions have been freely made in the North, foundry grades being from 50c. to \$1 lower at Chicago, Pittsburgh and other centers, while Bessemer has also declined \$1 and basic can be had 50c. below recent quotations at Pittsburgh. In spite of the very small production last month in Alabama, stocks were increased 18,000 tons and it is expected there will be further curtailment of production this month. It is understood at San Francisco that some of the iron recently sold there as from the Orient was Alabama iron originally exported to Japan and brought back on account of the business depression in that country.

Not since May 1, 1911, when the balance of ore on Lake Erie docks was 6,676,820 tons, has the May 1 total been so great as this year's, which is 8,093,854 tons. Shipments from docks in April were only one-fifth of those for April, 1920.

British pig iron output was only 60,300 tons in April and the month's total of steel ingots was but 68,400 tons—both showing the paralyzing effect of the coal strike. Compared with the 1920 figures the current operation is less than 10 per cent.

Europe and the Orient bought 2000 to 2500 tons of American electrolytic copper late last week.

## Pittsburgh

PITTSBURGH, May 10.

Steel prices again are beginning to take on a somewhat ragged appearance, due to the fact that here and there anxiety on the part of some of the independent producers to secure business has led to substantial concessions from the stabilized levels, but some makers are not prepared to yield. The outstanding cases of this sort are found in hot-rolled strip steel, wire nails, and sheet bars, which in the week under review have gone at lower than the April 13 schedules. The Ford Motor Co., which recently put out an inquiry for 4000 tons of hot-rolled strips and for 5000 tons of cold-rolled strips, has placed the former at 2.40c., base, Pittsburgh, a concession of \$7 per ton from the regular market quotation, while the Texas Co., which is seeking 4200 kegs of wire nails, was quoted \$3 base per keg, Pittsburgh, or \$5 per ton below the recently established quotation. Labelle Iron Works has placed 2000 tons of an inquiry amounting to 5000 tons of Bessemer sheet bars, at below the stabilized quotation of \$39, Pittsburgh or Youngstown.

Concessions have not yet appeared in other finished



## A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics

At date, one week, one month, and one year previous

For Early Delivery

### Pig Iron, Per Gross Ton:

	May 10, 1921	May 3, 1921	Apr. 12, 1921	May 11, 1920
No. 2X, Philadelphia...	\$25.81	\$25.81	\$26.26	\$47.05
No. 2, Valley furnace...	23.50	24.00	25.00	44.00
No. 2, Southern, Cin'tit...	26.50	27.50	27.50	45.60
No. 2, Birmingham, Ala. f.	22.00	23.00	23.00	42.00
No. 2 foundry, Chicago...	23.00	23.00	24.00	43.00
Basic, del'd, eastern Pa.	25.00	25.00	25.00	44.80
Basic, Valley furnace...	22.00	22.50	23.00	43.00
Bessemer, Pittsburgh...	25.96	26.96	26.96	43.90
Malleable, Chicago...	23.00	24.00	24.00	43.50
Malleable, Valley...	24.00	24.50	25.00	44.00
Gray forge, Pittsburgh...	23.46	24.96	25.96	43.40
L. S. charcoal, Chicago...	37.50	38.50	38.50	57.50
Ferromanganese, del'v'd.	85.00	90.00	90.00	225.00

### Rails, Billets, etc.,

Per Gross Ton:

Bess. rails, heavy, at mill.	\$45.00	\$45.00	\$45.00	\$55.00
O-h. rails, heavy, at mill.	47.00	47.00	47.00	57.00
Bess. billets, Pittsburgh...	37.00	37.00	38.00	60.00
O-h. billets, Pittsburgh...	37.00	37.00	38.00	60.00
O-h. sheet bars, P'gh...	39.00	39.00	38.00	80.00
Forging billets, base, P'gh.	42.00	42.00	41.00	80.00
O-h. billets, Phila...	42.74	42.74	44.24	64.10
Wire rods, Pittsburgh...	48.00	48.00	48.00	70.00
Skelp, gr. steel, P'gh...	2.20	2.20	2.10	2.75
Skelp, sh. steel, P'gh...	2.20	2.20	2.45	3.00

### Finished Iron and Steel,

Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia...	2.35	2.35	2.35	4.25
Iron bars, Chicago...	2.38	2.38	2.38	3.75
Steel bars, Pittsburgh...	2.10	2.10	2.00	3.75
Steel bars, New York...	2.48	2.48	2.38	4.02
Tank plates, Pittsburgh...	2.20	2.20	2.00	3.75
Tank plates, New York...	2.58	2.58	2.38	4.02
Beams, etc., Pittsburgh...	2.20	2.20	2.00	3.10
Beams, etc., New York...	2.58	2.58	2.38	3.27
Steel hoops, Pittsburgh...	2.75	2.75	2.75	5.00

\*The average switching charge for delivery to foundries in the Chicago district is 70c. per ton.  
†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

The prices in the above table are for domestic delivery and do not necessarily apply to export business.

### Sheets, Nails and Wire,

	May 10, 1921	May 3, 1921	Apr. 12, 1921	May 11, 1920
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 28, P'gh.	4.00	4.00	3.75	5.50
Sheets, galv., No. 28, P'gh.	5.00	5.00	4.75	7.00
Sheets, blue an't'd, 9 & 10.	3.10	3.10	3.00	4.50
Wire nails, Pittsburgh...	3.00	3.25	3.00	4.00
Plain wire, P'gh...	3.00	3.00	3.00	3.50
Barbed wire, galv., P'gh...	4.10	4.10	3.85	4.45
Tin plate, 100-lb. box, P'gh	\$6.25	\$6.25	\$6.25	\$7.00

### Old Material,

Per Gross Ton:

Carwheels, Chicago	\$15.00	\$14.50	\$14.00	\$37.00
Carwheels, Philadelphia...	16.00	16.00	18.00	40.00
Heavy steel scrap, P'gh...	13.00	13.00	12.50	25.00
Heavy steel scrap, Phila...	12.00	11.00	11.50	23.50
Heavy steel scrap, Ch'go.	11.50	11.50	11.00	23.00
No. 1 cast, Pittsburgh...	18.00	18.00	18.00	32.00
No. 1 cast, Philadelphia...	18.00	18.00	18.00	38.00
No. 1 cast, Ch'go (net ton)	13.50	13.50	13.00	37.50
No. 1 RR. wrot, Phila...	15.00	15.00	17.00	34.00
No. 1 RR. wrot, Ch'go (net)	10.50	10.00	10.00	26.50

### Coke, Connellsville,

Per Net Ton at Oven:

Furnace coke, prompt...	\$3.25	\$3.25	\$3.50	\$11.00
Furnace coke, future...	3.40	3.40	4.00	11.00
Foundry coke, prompt...	4.50	4.50	5.00	12.00
Foundry coke, future...	5.00	5.00	5.50	12.00

### Metals,

Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York...	12.75	12.75	12.75	19.00
Electrolytic copper, N. Y.	12.50	12.37 1/2	12.50	19.00
Zinc, St. Louis...	4.95	4.95	4.65	7.80
Zinc, New York...	5.45	5.45	5.15	8.15
Lead, St. Louis...	5.00	4.50	4.25	8.15
Lead, New York...	5.00	4.50	4.25	8.50
Tin, New York...	32.25	31.87 1/2	30.00	56.25
Antimony (Asiatic), N. Y.	5.25	5.25	5.12 1/2	10.00

steel products, but the reason is not entirely to be found in the attitude of manufacturers so much as it is in the absence of anything approaching a desirable piece of business. Although the 20 per cent wage reduction announced a week ago by the Steel Corporation undoubtedly was intended to be associated with the price reduction by the same interest on April 13, this is not the interpretation placed by buyers on that action. Most of them seem to believe that the wage reduction permits of still further price cuts by the corporation and consequently are no more anxious to place orders now than they were a short time ago.

Reports about the automobile industry are of a less favorable tenor than they were recently, the price cuts announced by several makers apparently having the effect of slowing up the demand for cars and making for a more cautious policy on the part of makers with regard to their steel requirements.

The structural market has been featured by the placing of the 8400 tons for the new Statler Hotel at Buffalo, which was placed with a Pittsburgh fabricator, but at a price only slightly above that at which the two big Cleveland jobs were awarded about a month ago. There is no sign of railroad buying in this market, the report of one car builder being that there has not been a new order for his company since last November. Demand from the makers of agricultural implements is not of a size to occasion much comment and activities in sheets and tin plate are greater on specifications than on new business. Buyers generally are holding fast to a hand-to-mouth policy and the steel industry as a whole in this and nearby districts is not averaging more than 35 per cent of capacity operations. There has been a decided falling away in the number of active sheets mills in the Valley district, which has declined from 56 last week to 39 this week. Tin plate

mills in operation reach a larger total this week than in recent weeks, but figuring on the working turn basis, operations will not exceed 40 per cent, if indeed they actually reach that rate.

The pig iron market continues to seek lower levels, chiefly because holders want cash more than they do the material on their yards.

**Pig Iron.**—Not much has been going on in the past week, but if there is any nervousness among sellers and buyers, it is with the former. The result is that most grades have declined 50c. per ton and Bessemer can be bought a full dollar a ton below the recent nominal quotation. A Valley steel maker who has been a pretty persistent buyer of basic pig iron about 10 days ago secured 2000 tons from another steel maker at \$22, Valley furnace, and this price can be repeated not only from steel companies but from merchant producers. No sales of Bessemer or malleable are noted, but both grades are offered at \$24, Valley furnace. The Standard Sanitary Mfg. Co. recently closed from 1000 to 1200 tons of Southern foundry iron for its Louisville, Ky., plant for May delivery, at \$22, Birmingham, for No. 2, a drop of \$1 a ton from the former price. Inquiries for small tonnages for Northern foundry iron have developed a general quotation of \$23.50, Valley furnace. Average prices for basic and Bessemer iron from Valley furnaces for April, as compiled by W. P. Snyder & Co., show \$22.50 for the former and \$25 for the latter, against \$24.50 and \$26.20, respectively, in March.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being \$1.96 per gross ton:

Basic	\$22.00
Bessemer	24.00
Gray forge	22.50
No. 2 foundry	23.50
No. 3 foundry	23.00
Malleable	24.00

**Ferroalloys.**—The market does not change much, consumers being indifferent and making so few purchases as to give little reliability to quotations. Domestic producers of ferromanganese continue to quote 76 to 80 per cent material at \$90 delivered, but with resale tonnages rather freely offered at \$85 there is not much chance for makers to secure orders. It is believed that a firm bid on \$80 would obtain some resale material, holders of which prefer money to the material. Producers' quotations on 20 per cent spiegeleisen also are considerably above those quoted on resale lots, and the latter are plenty enough to take care of such inquiries as are coming out. The market continues dull and weak on 50 per cent ferrosilicon. It is almost impossible to get consumers to make an offer of any price and those who have more of a stock than they see any immediate use for are rather anxious to dispose of the surplus to avoid loss from disintegration. Prices on the lower grades of ferrosilicon are absolutely nominal.

We quote 76 to 80 per cent ferromanganese at \$85 to \$90 delivered on domestic and \$100 c.i.f. Atlantic seaboard, the nominal quotation of English producers. We quote average 20 per cent spiegeleisen at \$33 to \$35 furnace quoted by makers on direct business and \$28 to \$30 furnace on resale tonnages; 50 per cent ferrosilicon, \$80 to \$85 furnace, freight allowed, for domestic and \$85 to \$90 delivered for foreign material. Bessemer ferrosilicon is quoted f.o.b. Jackson County and New Straitsville, Ohio, furnaces, as follows: 9 per cent, \$44.50; 10 per cent, \$48; 11 per cent, \$51.30; 12 per cent, \$54.60. Silvery iron, 6 per cent, \$35; 7 per cent, \$36.50; 8 per cent, \$38.50; 9 per cent, \$40.50; 10 per cent, \$43; 11 per cent, \$46.30; 12 per cent, \$49.50. The present freight rate from Jackson and New Straitsville, Ohio, into the Pittsburgh district is \$4.06 per gross ton.

**Billets, Sheet Bars and Slabs.**—Very little demand is coming out in this district for any form of semi-finished steel, and while the April 13 quotations are closely adhered to on the part of all makers, they are not very well founded on sales. A fair business in sheet bars for nearby mills is reported by Valley makers, and Labelle Iron Works, which will start up eight sheet mills at its Steubenville plant next Monday and which put out an inquiry recently for 5000 tons of Bessemer sheet bars, is reported to have closed on 2000 tons. It is not known where the business went, but it is supposed to have been taken by a Valley maker and the common belief is that it was placed at less than the regular market base of \$39, Pittsburgh or Youngstown, as one maker who quoted this price was informed that it was more than \$1 a ton above what the bars could be placed at. Some sort of a trade is involved, it is said, whereby Labelle Iron Works will ship a tonnage of bundled sheet scrap as part payment for the sheet bars. Production is low, the average operation of open hearth furnaces in this and nearby districts being placed at between 30 and 35 per cent of capacity.

We quote 4 x 4-in. soft Bessemer and open-hearth billets at \$37; 2 x 2-in. billets, \$39; Bessemer and open-hearth sheet bars, \$39; slabs, \$38; forging billets, ordinary carbons, \$42, all f.o.b. Youngstown or Pittsburgh mills.

**Wire Rods.**—Demands still are few and for only small tonnages. Makers, however, are matching production to the demand and there is close adherence to the stabilized price of \$48 for the base size of soft rods. Prices are given on page 1274.

**Skelp.**—The largest inquiry which recently has been before the trade is one for 500 tons from the East. This was for the smaller sizes of pipe and a quotation of 2.20c. base, Pittsburgh, by an independent maker here brought back the word that less could be done. Inquiries and sales generally are small.

**Iron and Steel Bars.**—Orders for merchant steel bars, though still small individually, are more numerous than they have been and most makers have accumulated a sufficient number to be obliged to put on some additional mills. The leading independent maker here has more capacity engaged this week than before in some time, and this also is true of some of the Valley producers. Buyers still are confining purchases to actual needs and are not committing themselves ahead to any extent. The largest inquiry for reinforcing bars is in connection with the Baldwin reservoir in Cleveland, for which 1700 and 1800 tons will be required. These bars are quoted at the same base as mild steel bars, or 2.10c. Pittsburgh, when rolled from new steel, but those rolled from old rails or shell steel are being offered at 2c. and probably can be bought for around

1.90c. Demand for iron bars still is slow and prices favor buyers.

We quote steel bars rolled from billets at 2.10c.; reinforcing bars, rolled from billets, 2.10c. base; reinforcing bars rolled from old rails 1.90c. to 2c.; refined iron bars, 2.75c. in carloads, f.o.b. mill, Pittsburgh.

**Wire Products.**—Buying of the more common products still is of a hand-to-mouth character and sales both individually and in the aggregate are below normal. The trouble seems to be that all of the independents allowed their customers to place fairly large orders at the prices in effect prior to April 13, and so long as these buyers have any low priced supplies coming to them, they are slow to order at the new quotations. The stabilized prices on wire in various forms are well observed, but this is not the case with nails, as a recent inquiry for 4200 kegs of bright nails from the Texas Co. brought out a quotation of \$3 by more than one maker. There also have been reports of sales by jobbers of cement coated nails in less than carloads at below 3c. On a base of \$2.85 per count keg, Pittsburgh, for large quantities the price out of warehouse should be \$3.20, plus freight.

We quote wire nails at \$3 to \$3.25 base per keg, Pittsburgh, and bright basic and Bessemer wire at \$3 base per 100 lb. Pittsburgh.

**Nuts, Bolts and Rivets.**—Makers of bolts and nuts are getting a fair number of orders for prompt delivery, but general business still is far from satisfactory, due to the fact that buyers are not anticipating their requirements. Plant operations average less than 50 per cent and a portion of the current production is going into stock. April 14 discounts are well observed but do not find very much basis because makers outside this district gave protection to their trade on the April 6 list. The rivet market still is dull and competition for business is so sharp that there is only slight observance of the regular quotations of \$3.50 for large structural rivets and \$3.60 for large boiler rivets. It is reported that concessions of as much as 25c. per 100-lb. have been made to secure orders. Prices are given on page 1274.

**Iron and Steel Pipe.**—As is the case in practically all lines of finished steel, buyers of steel tubular goods and for that matter of wrought iron pipe are ordering supplies only as they are needed. There is fairly close observance of the April 13 discounts, although none of the makers has much of a backlog to work on. The leading interest is operating about 60 per cent of the average capacity, but this is somewhat higher than what the independents are doing just now. The Wheeling Steel & Iron Co. this week started up two of its five pipe furnaces at Benwood, W. Va., after a shutdown of several months. Discounts are given on page 1274.

**Steel Rails.**—Only small tonnages of light sections are being sought and those rolled from new steel readily are obtainable at the Steel Corporation base of 2.20c., Pittsburgh. The coal situation does not hold out sufficient promise to encourage development work and industrial activities are too limited to bring much demand for light rails from that source. Light sections rolled from old rails still are freely offered at 2c.

We quote 25 to 45-lb. sections, rolled from new steel, 2.20c.; rolled from old rails, 1.90c. to 2c.; standard rails, \$45 mill for Bessemer, and \$47 for open-hearth sections.

**Tin Plate.**—Movement of tin plate is almost entirely on specifications and little new business is coming out. Lack of new demand may be advanced as the reason why the price of \$6.25 per base box, Pittsburgh, on production plate is being closely observed. Stock items still are freely offered at \$5.75, and there are intimations that some business has been placed for even less.

**Hot-Rolled and Cold-Rolled Strips.**—Although most makers still are adhering to the established bases of 2.75c. for hot-rolled and 5.50c. for cold-rolled strips, the market is not as strong as it would appear from surface conditions. The Ford Motor Co., on its inquiry for 4000 tons of hot-rolled strips, was able to place the business at 2.40c. base, and while definite information is lacking, it is supposed that it was able to secure concessions on the 5000 tons of cold-rolled strips for which it recently inquired.



**Cold-Finished Steel Bars.**—There is close adherence to the stabilized base of 2.10c. on the part of all makers, but business continues very quiet as regards both new demands and releases against suspended tonnages. The automotive industry, the largest individual user of these bars, is merely ordering out such tonnages as are needed to round existing stocks. Orders coming from other sources are entirely for small lots and in all cases are accompanied by shipping instructions.

**Boiler Tubes.**—Very little demand is appearing and the new discounts are finding no more basis in sales than the old ones. Discounts are given on page 1274.

**Sheets.**—There continues to be a fairly good movement of automobile sheets, but in spite of reports of big purchases, it may be stated that practically all of the shipments are on specifications rather than against new business. All companies owe the automobile builder rather sizable tonnages on old orders and since prices have been revised on these contracts, there is no excuse for fresh purchases. It is because there are no big orders to test the market that automobile sheet prices are well sustained. Other users of sheets are ordering steadily, but usually in small lots and for quick delivery. It is reported that the Vacuum Oil Co. recently distributed an order for 1,000,000 steel oil barrels among three large makers in this country and one in Canada, at a flat price of \$8.40 each. These barrels are made from No. 16 gage blue annealed sheets and the total number would require between 25,000 and 30,000 tons of these sheets. Labelle Iron Works will start up eight sheet mills next week. In the past week the Mercer works of American Sheet & Tin Plate Co. started up and all but one train of mills at the Vandergrift, Pa., works of this company are in operation. Current operations of the sheet industry as a whole are estimated at between 30 and 35 per cent capacity. Prices are given on page 1274.

**Spikes.**—Inquiries from the railroads amounting to about 6000 kegs of large spikes still are pending. The Steel Corporation and most of the other independent makers are quoting a base of 3.40c., Pittsburgh, on these spikes, but some of the Eastern makers are quoting as low as 3.25c. on the largest size. Fair demand is noted for small spikes but sales run small both individually and collectively. Prices are given on page 1274.

**Hoops and Bands.**—Almost no demand is coming out for these products and while all makers still are quoting 2.75c. base, Pittsburgh, the fact that hot-rolled strips have sold at 2.40c. creates doubt that 2.75c. now could be obtained for hoops and bands.

**Cotton Ties.**—The season probably will be late in opening this year because most makers carried over some tonnage from last year and the tendency will be to hold back for something definite in the way of information as to the size of this year's cotton crop before rolling schedules will be made up. Makers will apply their stocks against early orders and roll against other requirements as they develop.

**Coke and Coal.**—The coke situation shows no striking change from that of a week ago except that business is on an even lighter scale than it has been. The more common asking price of operators against spot tonnages of furnace coke is \$3.50 per net ton, oven, but this price has found little recent basis in sales and there is reason to suppose that, if the market were tested, a price as low as \$2.25 would develop. The market really is dormant because of the extremely little demand, due to the fact that few blast furnaces using beehive oven coke now are in blast. Spot foundry coke still is quotable from \$4.50 to \$5.25 per net ton oven, and both extremes find basis in small sales. There is no quotable market on contract coke in the lack of such business. The fact that a revision in freight rates has resulted in the movement of some fair sized tonnages to the lakes finds some reflection in a more optimistic tone to the coal market. Actually, however, conditions as far as the general demand and prices are concerned show no decided change. It still is possible to buy spot tonnage of mine run steam coal at \$1.75 to \$2.25, f.o.b. mines, of gas coal from \$2.25 to \$2.50, and of by-product coal from \$1.90 to \$2.15.

**Old Material.**—There is very little change in the general situation. Some of the steel companies are giving shipping instructions against old contracts, when the dealers will make price adjustments, but this does not mean the movement of much material because the dealers are refusing to make as much of a concession as usually is sought. Some of the steel companies would buy heavy melting steel for throwing down on their yards if they could buy it around \$13 to \$13.50, but so far as can be learned they have not secured much tonnage at these prices. There is not much activity to the market, but because only limited tonnages are coming out, prices are fairly firm. It is reported here that the offerings of turnings by Dodge Bros. brought the equivalent of \$9.25 delivered, Pittsburgh. Some borings offered in the May list of the Pennsylvania Lines, Eastern Region, brought \$9.50, Pittsburgh, and central Ohio dealers paid more than \$14 for some heavy melting steel offered in the list of the Pennsylvania Railroad Lines West. In explanation it is stated that these dealers paid a premium in order to secure material which could be delivered without danger of rejection against some old orders carrying rather high prices. Offerings of machine shop turnings at less than \$9 are very scant, although one melter of this grade reports having secured some small tonnages recently at \$8.50. Low phosphorus steel scrap, chiefly heavy plates, has been offered as low as \$18. We note some small sales of heavy breakable cast at \$14.75. A large Pittsburgh independent secured about 1000 tons of heavy melting steel and knuckles, couplers and springs, offered in the May list of the Pennsylvania Railroad, Eastern region, paying an average price of slightly less than \$15 per gross ton, delivered.

We quote for delivery to consumers' mills in the Pittsburgh and other districts taking the Pittsburgh freight rate, as follows:

Heavy melting steel, Steubenville, Follansbee, Brackenridge, Monessen, Midland and Pittsburgh.....	\$13.00 to \$13.50
No. 1 cast cupola sizes.....	18.00 to 19.00
Rerolling rails, Newark and Cambridge, O.; Cumberland Md.; Huntington, W. Va.; Franklin, Pa., and Pittsburgh.....	14.00 to 14.50
Compressed sheet steel.....	10.50 to 11.00
Bundled sheet sides and ends, f.o.b. consumers' mills, Pittsburgh dist.....	9.00 to 9.50
Railroad knuckles and couplers.....	14.00 to 14.50
Railroad coil and leaf springs.....	14.00 to 14.50
Railroad grate bars.....	13.00 to 13.50
Low phosphorus melting stock, bloom and billet ends, heavy plates, 1/4-in. and heavier.....	18.00 to 19.00
Railroad malleable.....	12.50 to 13.00
Iron car axles.....	22.00 to 23.00
Locomotive axles, steel.....	20.00 to 21.00
Steel car axles.....	15.50 to 16.00
Cast iron car wheels.....	14.50 to 15.00
Rolled steel wheels.....	14.00 to 14.50
Machine shop turnings.....	8.50 to 9.00
Sheet bar crop ends at origin.....	13.50 to 14.00
Heavy steel axle turnings.....	11.00 to 11.50
Short shoveling turnings.....	9.50 to 10.00
Heavy breakable cast.....	14.50 to 15.00
Stove plate.....	13.00 to 13.50
Cast iron borings.....	9.50 to 10.00
No. 1 railroad wrought.....	12.50 to 13.00

## Foundry Operations

A consulting foundry engineering firm, with clients scattered throughout this country and Canada, makes the following report regarding the general operating situation. Fully 25 per cent of all foundries are idle; 25 per cent are making an average of two casts a week; 25 per cent three casts a week, and the remaining 25 per cent, four and five casts a week. The last-named group consists largely of jobbing shops, which are receiving orders from manufacturers for repair parts and also for make-up castings to fill up gaps in stocks. The latter include miscellaneous work which manufacturers failed to take care of before suspending operations in their own foundries.

The average number of molders, helpers, and core makers employed, does not exceed 60 per cent of normal and in many shops not more than 35 per cent of the operating staff is at work. This engineering firm also reports that foundries, the country over, have abnormal supplies of pig iron and coke on hand for the present rate of consumption. These stocks, however, would not be considered unduly large if operations were full.

## Chicago

CHICAGO, May 10.

The market is generally quiet and the stabilized steel prices seem to be holding. Reports regarding bookings during the first week in April are by no means uniform.

Some producers have noted a falling off in both inquiries and orders while others, notably a maker of alloy steel bars and a mill rolling mild steel bars, find business improved. The betterment in alloy steel bookings is accounted for by purchases by the automobile industry while the sources of merchant bar business are too varied to be classified. On the whole, sellers do not look forward to a sharp turn in trade, but expect improvement to develop slowly and probably with intermittent periods of slack and active business for several months. Owing to the low rate of foundry operations, merchant pig iron production remains small, only three merchant furnaces being active in the Chicago and Wisconsin districts. One of these, a Federal stack, will probably be blown out before the close of the month.

Steel plant operation in this section is better at some places and worse at others. The Illinois Steel Co. has started two blast furnaces at Joliet, giving it a total of 11 active stacks out of 29 in this territory, and is producing steel at about 42 per cent of capacity, as against 31 per cent a week ago. The Wisconsin Steel Co., which has been on a 40 per cent basis for some time, is doing a little better, while the Inter State Iron & Steel Co. is now operating both its steel and bar mills at 50 per cent of normal capacity. The Republic Iron and Steel Co.'s bar iron mill at East Chicago, which has been idle for three months, has started up half of its capacity single turn and the Calumet Steel Co. is also operating single turn. The Inland Steel Co., on the other hand, has reduced its operations from 60 per cent to 40 per cent of normal.

**Pig Iron.**—Limited and small sales predominated, with prices for Northern material on a \$23, furnace base, for No. 2 foundry, malleable and basic. A melter engaged in large part on automobile work has bought 500 tons of malleable at that price, and a sale of 125 tons of malleable has been made on the same terms. A Louisville foundry has purchased 500 tons of resale Northern foundry at a price which figures back to \$22.75, base, Chicago. It is reported that Southern foundry can be bought at as low as \$22, Birmingham, but there have been no sales in this territory to indicate it, the heavy freight constituting a barrier to the shipment of Southern material this far North. Southern silicon differentials are said to be weak, so that for the time being quotations on grades higher than the base price for foundry cannot be computed with any hope of accuracy. Approximately 200 tons of resale charcoal has been offered at \$37 delivered, Chicago, and first hand material is now to be had as low as \$34, furnace, or about \$37.50 Chicago. A Jackson county producer has yard stocks of 6 and 7 per cent silvery which he is offering at \$31 and \$32, respectively, or \$36.32 and \$37.32 delivered, Chicago. These prices are lower than any furnace quotations thus far reported.

The following quotations are for iron delivered at consumers' yards, except those for Northern foundry, malleable and steel-making irons, including low phosphorus, which are f.o.b. furnace and do not include a switching charge averaging 70c. per ton:

Lake Superior charcoal, averaging sil.	
1.50, delivered at Chicago.....	\$37.50
Northern coke, No. 1, sil. 2.25 to 2.75	23.50
Northern coke foundry, No. 2, sil.	
1.75 to 2.25 .....	23.00
Northern high phos. ....	23.00
Southern foundry, sil. 1.75 to 2.25....	29.67
Malleable, not over 2.25 sil. ....	23.00
Basic .....	23.00
Low phos. Eastern furnace, sil. 1 to 2	
per cent copper free.....	35.00
Silvery, sil. 8 per cent.....	40.00

**Ferroalloys.**—A sale of 100 tons of ferromanganese has been made at \$87.50 delivered. It would seem that this price represents the top of the market, as several other sales have been made at prices ranging all the way from \$87.50 down to \$82.50, delivered. A resale lot of

250 tons of 50 per cent ferrosilicon is being offered at \$78, delivered, and one carload has been sold at that price. That is \$2 less than the lowest producer's quotation.

We quote 75 to 80 per cent ferromanganese, \$84 to \$85 delivered; 50 per cent ferrosilicon, \$80 delivered; spiegeleisen, 18 to 22 per cent, \$38 to \$39 delivered.

**Plates.**—New business is very light and most of the tonnage taken during the spurt coincident with the stabilization of prices has been rolled. There appears to be no deviation from the price of 2.20c., Pittsburgh, for tank plates.

The mill quotation is 2.20c., Pittsburgh, the freight to Chicago being 38c. per 100 lb. Jobbers quote 3.23c. for plates out of stock.

**Structural Material.**—The mills find new bookings disappointingly small and no indications of a change for the better are found in the reports from fabricators. Some construction work continues to be done, but with the railroads pursuing a policy of retrenchment and most industries curtailing operations rather than expanding plant facilities, the aggregate tonnage involved is relatively light. The conspicuous award of the week was 1594 tons for five buildings to be erected for the Corn Products Refining Co. at Kansas City, Mo. Bethlehem sections have been specified for this steel, which was divided among the Gage Structural Steel Works, Chicago, the Kansas City Structural Steel Co., Kansas City, and the Christopher & Simpson Iron Works, St. Louis. Other lettings include:

Texas & Pacific Railway, bridge, Bayou Plaquemine, La., 764 tons, to Phoenix Bridge Co.

Silver King Coalition Mines Co., new buildings, Silver King mill, Park City, Utah, 269 tons, to Kansas City Structural Steel Co.

Hills-Sutton Co., 50 5000-bbl. oil storage tank.

El Paso and Orange, Tex., 178 tons, to unnamed fabricator.

Beaumont Iron Works Co., machine shop, Beaumont, Tex., 163 tons, to unnamed fabricator.

Federal Reserve Bank, Houston, Tex., 150 tons, to Decatur Bridge Co.

River and rail terminal buildings, Nashville, Tenn., 150 tons, to Nashville Bridge Co.

Moose Lodge Building, Casper, Wyo., 111 tons, to Christopher & Simpson Iron Works.

Pending work includes:

Union Pacific Railroad, deck girder plate spans for bridges, 375 tons, and Tenth Street viaduct, Omaha, 360 tons.

Northwestern Elevated Railroad, Chicago, new station and track elevation at Grand Avenue, 165 tons.

Carbon Coal Co., Carbon, W. Va., trestle and tipple, 125 tons.

Curt. Teich & Co., Chicago, factory addition, 100 tons.

Washington Parish Bogalusa, La., a 230-ft. drawbridge span and a 70-ft. approach span for Pearl River.

The mill quotation is 2.20c., Pittsburgh, which takes a freight rate of 38c. per 100 lb. for Chicago delivery. Jobbers quote 3.23c. for materials out of warehouse.

**Sheets.**—There is little life in the market.

Mill quotations are 4c. for No. 28 black; 3.10c. for No. 10 blue annealed and 5c. for No. 28 galvanized, these all being Pittsburgh prices, subject to a freight to Chicago of 38c. per 100 lb.

Jobbers quote: Chicago delivery out of stocks, No. 10 blue annealed, 4.13c.; No. 28 black, 5.40c.; No. 28 galvanized, 6.40c.

**Bars.**—Business in mild steel bars is light and most of the tonnage booked under protections granted at lower prices has been rolled. Demand for reinforcing bars is rather disappointing in view of the large amount of reinforcing work in prospect. As yet contemplated work far exceeds that which has actually been let. Buying of bar iron is spasmodic and, in the aggregate, sub-normal. The Chicago & Northwestern Railroad has bought 400 tons and a number of smaller orders have been taken. The East Chicago bar iron mill of the Republic Iron & Steel Co., which has been idle for months, resumed operations this week. Prices have apparently stabilized on a basis of 2c. Pittsburgh, or 2.38c. Chicago. There is a lack of uniformity in the rate at which orders and queries for rail carbon steel bars are received, one week showing fair bookings while the next week will be devoid of business. On the whole, buying is light, farm gate, bed and fence post manufacturers being the chief purchasers, although there is some demand for deformed bars for reinforcing purposes. The ruling market price



is 2.25c. mill, but as low as 2c., mill, has been done.

Mill prices are: Mild steel bars, 2.10c., Pittsburgh, taking a freight of 38c. per 100 lb.; common bar iron, 2.38c., Chicago; rail carbon, 2c. to 2.25c. mill or Chicago.

Jobbers quote 3.13c. for steel bars out of warehouse. The warehouse quotation on cold-rolled steel bars is 4.63c. for rounds and 50c. extra for flats, squares and hexagons. Jobbers quote hard and medium deformed steel bars at 2.88c. base.

**Wire Products.**—Numerous orders calling for immediate shipment continue to be received from jobbers. The orders are uniformly small, however, indicating that the buyers are not yet disposed to pile stocks. For mill prices see finished iron and steel, f.o.b., Pittsburgh, page 1274.

**Warehouse Prices.**—Wire has been reduced 25c. per 100 lb., black annealed now being quoted at \$3.88 and bright basic No. 12 and heavier \$4.03.

**Rails and Track Supplies.**—The Chicago & Northwestern and the Illinois Central are in the market for tie plates. Generally speaking new business in track supplies is light.

Standard Bessemer rails, \$45; open-hearth rails, \$47; light rails rolled from new steel, 2.20c. f.o.b. makers' mills.

Standard railroad spikes, 3.40c., Pittsburgh; track bolts with square nuts, 4.35c., Pittsburgh; steel tie plates, 2.50c., and steel angle bars, 2.75c., Pittsburgh and Chicago; tie plates, iron, 2.50c. to 3c. f.o.b. makers' mills.

**Bolts and Nuts.**—Stocks which were bought for speculative purposes are being offered at less than the manufacturers' price, thereby introducing a disturbing element in this market. Although many makers are still adhering strictly to the new discounts, there are signs of weakness here and there. An Eastern manufacturer, for example, is reported to have sold 80,000 machine bolts to a Western railroad, at a discount of 68 and five, f.o.b., Chicago. For mill prices, see finished iron and steel, f.o.b., Pittsburgh, page 1274.

Jobbers quote structural rivets, 4.53c.; boiler rivets, 4.63c.; machine bolts up to  $\frac{3}{8}$  x 4 in., 50 per cent off; larger sizes, 45 off; carriage bolts up to  $\frac{3}{8}$  x 6 in., 40 off; larger sizes, 40 off; hot pressed nuts, square and hexagon tapped, \$2.10 off; blank nuts, \$2.60 off; coach or lag screws, gimlet points, square heads, 50 and 5 per cent off. Quantity extras are unchanged.

**Cast Iron Pipe.**—Bookings are below expectations for this season of the year. Some municipalities, however, are going ahead with their programs, and in this connection it is to be noted that Ohio cities are more active than those in Western States. Such concessions as have been brought out in competitive bids in this territory have not been of sufficient importance to forecast any change in the base price. Lettings include:

Spring Wells, Mich., 1250 tons, to United States Cast Iron Pipe & Foundry Co.

Kansas City, Kan., 200 tons, to American Cast Iron Pipe Co.

#### New work includes:

Cleveland, 1325 tons, 6-in. to 60-in., May 16.

Columbus, Ohio, 492 tons, May 18.

Cambridge, Minn., 300 tons, May 19.

Evansville, Ind., 175 tons, May 9.

Hamtramck, Mich., 125 tons, May 10.

Sutherland, Neb., 115 tons, May 12.

Kansas City, Mo., several hundred tons, bids expected to be taken within the next two weeks.

Although there has been no change in cast-iron pipe prices, soil pipe has been reduced \$5 a ton, bringing it back to a 55 per cent base discount, Birmingham.

We quote per net ton f.o.b. Chicago, ex-war tax as follows: Water pipe, 4-in., \$69.10; 6-in. and above, \$64.10; class A and gas pipe, \$4 extra.

**Old Material.**—The dealers continue to purchase railroad material to stock in their yards against an expected advance. In some instances prices paid have been higher than those quoted below. This speculative activity has tended to stiffen the market and such purchases as have been made by consumers have been on a slightly higher level. There is doubt in the minds of some users, however, that the advances can hold in view of the low rate of consumption and the actual reduction in operations by a number of important buyers. Railroad offerings include the Union Pacific, 1000 tons; the Pere Marquette, 900 tons, the Soo Line, 450 tons

and the Pennsylvania Northwestern Region, 300 tons.

We quote delivery in consumers' yards, Chicago and vicinity, all freight and transfer charges paid, as follows:

Per Gross Ton	
Iron rails	\$17.50 to \$18.00
Relaying rails	30.00 to 35.00
Car wheels	15.00 to 15.50
Steel rails, rerolling	13.25 to 13.75
Steel rails, less than 3 ft.	14.00 to 14.50
Heavy melting steel	11.50 to 12.00
Frogs, switches and guards, cut apart	11.50 to 12.00
Shoveling steel	11.00 to 11.50
Low phos. heavy melting steel	14.00 to 14.50
Drop forge flashings	7.50 to 8.00
Hydraulic compressed sheet	8.00 to 8.50
Axle turnings	8.50 to 9.00

Per Net Ton	
Iron angles and splice bars	15.50 to 16.00
Steel angle bars	11.50 to 12.00
Iron arch bars and transoms	15.50 to 16.00
Iron car axles	22.50 to 23.00
Steel car axles	14.50 to 15.00
No. 1 busheling	9.00 to 9.50
No. 2 busheling	7.00 to 7.50
Cut forge	10.00 to 10.50
Pipes and flues	7.00 to 7.50
No. 1 railroad wrought	10.50 to 11.00
No. 2 railroad wrought	10.00 to 10.50
Steel knuckles and couplers	12.00 to 12.50
Coil springs	13.00 to 13.50
No. 1 cast	13.50 to 14.00
Low phos. punchings	11.00 to 11.50
Locomotive tires smooth	10.50 to 11.00
One shop turnings	4.50 to 5.00
Cast borings	6.00 to 6.50
Stove plate	13.00 to 13.50
Grate bars	10.50 to 11.00
Brake shoes	10.50 to 11.00
Railroad malleable	12.50 to 13.00
Agricultural malleable	12.50 to 13.00
Country mixed	8.50 to 9.00

The Calumet Steel Co., Chicago Heights, Ill., has placed in operation new motor driving equipment for its mills. Its two 14-in. mills are operated by two 1000 hp. variable speed Kraemer type motors installed by the Westinghouse Electric & Mfg. Co. Its 8-in. mill has been equipped with a 500 hp. constant speed motor.

## New York

NEW YORK, May 10.

**Pig Iron.**—The strike of iron molders in New Jersey foundries which was declared a number of weeks ago is still on, but the foundries are able to make all the castings for which they have orders. The business is, however, very limited. A sale of 900 tons of Virginia iron has been made on the basis of \$28, furnace, for No. 1 X, silicon 2.75 to 3.25. The Princess furnace at Glen Wilton, Va., has been blown in and its prices are \$26 for iron analyzing 1.75 to 2.25 silicon, \$27 for 2.25 to 2.75 silicon and \$28 for 2.75 to 3.25 silicon. A sale of 200 tons of No. 2 X was made to a New Jersey machinery company at about \$25, eastern Pennsylvania furnace. There is much uncertainty as to differentials. Furnaces are quoting as seems necessary in order to book business.

We quote delivered in the New York district as follows, having added to furnace prices \$2.52 freight from eastern Pennsylvania, \$5.46 from Buffalo and \$6.16 from Virginia:

East. Pa. No. 1 fdy., sil. 2.75 to 3.25	\$28.52 to \$29.52
East. Pa. No. 2X fdy., sil. 2.25 to 2.75	27.52 to 28.52
East. Pa. No. 2 fdy., sil. 1.75 to 2.25	26.52 to 27.52
Buffalo, sil. 1.75 to 2.25	32.46 to 33.46
No. 2 Virginia, sil. 1.75 to 2.25	31.16 to 32.16

**Ferroalloys.**—The spiegeleisen market is slightly more active there having been sales of two carloads. Inquiries for several other carloads besides a lot of 200 tons are before the market. Demand for ferromanganese is practically dead but quotations remain nominally unchanged. There are no reports of any activity in the 50 per cent ferrosilicon market where quotations are also without change. There are offerings of manganese ore below the prevailing quotations which are nominal but no sales are recorded. Quotations are as follows:

Ferromanganese, domestic, delivered, per ton	\$90.00
Ferromanganese, British, seaboard, per ton	\$100.00
Spiegeleisen, 20 per cent, furnace, per ton	\$32.00
Ferrosilicon, 50 per cent, delivered, per ton	\$80.00
Ferrotungsten, per lb. of contained metal	58c.
Ferrochromium, 6 to 8 per cent carbon, 60 to 70 per cent Cr., per lb. Cr.	16c. to 16.50c.
Ferrovandium, per lb. of contained vanadium	\$5.00
Manganese ore, foreign, per unit, seaboard	25c. to 30c.

**Finished Iron and Steel.**—Dullness continues in the local steel market. There are few inquiries and none of any importance. The American Locomotive Co. may be able to use its own stock of material for about 1500 tons of plates needed for forty locomotives recently

sold for export to China. Prices on all steel products remain firm, the only price cutting apparently being on concrete reinforcing bars, which are being offered as low as 1.75c., Pittsburgh. These bars, however, are said to be re-rolled from shell steel or discard billets. The National Steel Rolling Co. will supply 1400 tons for a grain elevator in Brooklyn. Soft steel bars of standard quality are generally quoted at 2.10c., Pittsburgh. Though conditions are growing more favorable for structural steel construction, there has been no marked increase in the volume of business. Labor costs and the prices of cement, brick, sand, etc., are declining. A number of large projects in New York City are being talked about, but have not yet come into the market. Lettings during the week include 700 tons for an apartment hotel in Baltimore to the Belmont Iron Works, and 250 for a factory building at Reading, Pa., to McClintic-Marshall Co. New projects up for bids include 300 tons for steel underpinning for the Lincoln Memorial, Washington, D. C.; 350 tons for repairs to bridges in Philadelphia; 700 tons for a bridge for the Central Railroad of New Jersey; 300 tons for a paper mill at Millinocket, Maine. The general contract for a foundry for the Chapman Valve Co., Indian Orchard, Mass., has been let; 200 tons of steel will be required. There has been no decision on the factory for the National Folding Box & Paper Co., New Haven, Conn., involving 300 tons. The Fort Pitt Bridge Works is credited with the 8000-ton Hotel Statler in Buffalo.

We quote for mill shipments, New York, as follows: Soft steel bars, 2.48c.; plates and structural shapes, 2.58c.; bar iron, flats, wider than 6 in., 2.98c. with half extras; light rounds, squares and flats, 3.48c., with full extras, and other sizes, 2.48c., with half extras.

**Warehouse Business.**—Transactions are still confined to small orders. There is little expectation of recovery for several months. Low priced canceled export tonnage, much of which is in good condition, is being offered to warehouses. Most of this material is at the port where it was awaiting shipment when cancellation was received. In some cases sale is offered to avoid further storage charges and on other tonnages the foreign purchaser has ordered material sold to his account. An average price on this material, which includes bars, angles, plates, etc., is 1.60c. per lb. A lot of 40,000 lb. of high-carbon steel, originally made for the Government is offered by the maker as low as 2c. per lb. base. The brass and copper situation is unchanged. Mills are operating about half time, and quotations from mills on good-sized orders are close with a tendency to shade. Warehouse prices remain unchanged. The pipe market is dull with no signs of early recovery. We quote prices on page 1288.

**High Speed Steel.**—The market continues dull with few orders of any size reported. Producers generally quote about \$1 per lb. for 18 per cent tungsten high speed steel.

**Cast-Iron Pipe.**—The Warren Foundry & Machine Co., Phillipsburg, N. J., has been awarded 6000 tons of 48-in. pipe for the city of New Bedford, Mass. The city of Boston has awarded 470,000 lb. No. 1 castings, branches and curves to the City Iron Foundry, Lowell, Mass., at 5.9c. per lb. Other bids submitted for this work were 6.25c.; 7.375c. with 2 per cent discount for cash in 10 days; 6.35c. with 1 per cent in 10 days; 8.5c.; 5½c. with 1 per cent in 10 days, and 6c. with 1 per cent in 10 days. It also awarded 146,000 lb., or 300 three-part screw box iron castings, to the Clark's Iron Foundry, Philadelphia, at 5.6c. per lb. Other bids were: 6.4c., 6.44c., 8.5c. and 6c. The Mechanics' Iron Foundry Co., Roxbury, Boston, was awarded 120,000 lb. No. 2 castings, frames and covers, at 3.7c. per lb.; 43,000 lb. 9 x 9 cast iron frames at 4.2c. per lb., and 30,000 lb. service stock iron castings at 7c. per lb. Other bids for the No. 2 castings were: 5.9c., 5.35c., 6.875c., 3.97c., 4.25c. and 5.25c. For the 9 x 9 frames: 5.75c., 5.8c., 4.7c., 6.95c., 5.6c. and 5.25c. For the service stock: 6.9c., 7.75c. and 7.25c. We quote f.o.b. New York: 6-in. and larger, \$63.30; 4-in., \$73.30; 3-in., \$83.30, with \$4 additional for Class A and gas pipe.

**Coke.**—Buyers have been annoyed by delays in receiving shipments, several deliveries having been held up at the scales until the railroads secured sufficient car loads to make a complete train to a certain district.

There is an inquiry for 1000 tons of furnace coke, the inquirer offering \$3, Connellsville base. Foundry coke centers around \$5, Connellsville base.

**Old Material.**—There is very little change in either inquiry, sales or prices. About five plants in eastern Pennsylvania have been inquiring for, or buying, comparatively small quantities—not over 200 tons—of scrap, chiefly heavy melting steel. Twelve dollars, delivered eastern Pennsylvania, is the highest price offered by brokers for heavy melting steel. Both railroads and railroad equipment manufacturers are hoarding material in their yards, refusing to sell at the prevailing low prices.

Buying prices per gross ton, New York, follow:

Heavy melting steel .....	\$7.00 to	\$7.50
Rerolling rails .....	10.00 to	10.50
Relaying rails, nominal.....	40.00 to	42.50
Steel car axles .....	10.50 to	11.00
Iron car axles .....	18.00 to	19.00
No. 1 railroad wrought.....	10.00 to	11.00
Wrought iron track .....	6.50 to	7.00
Forge fire .....	5.00 to	6.00
No. 1 yard wrought, long.....	8.00 to	9.00
Light iron .....	2.00 to	3.00
Cast borings (clean).....	4.00 to	4.50
Machine-shop turnings.....	3.00 to	4.00
Mixed borings and turnings.....	3.00 to	4.00
Iron and steel pipe (1 in. diam., not under 2 ft. long).....	7.00 to	8.00
Stove plate .....	9.00 to	9.50
Locomotive grate bars.....	9.00 to	9.50
Malleable cast (railroad).....	8.00 to	8.50
Old car wheels.....	14.00 to	14.50

Prices which dealers in New York and Brooklyn are quoting to local foundries, per gross ton, follow:

No. 1 machinery cast.....	\$16.00 to	\$17.00
No. 1 heavy cast (columns, building materials, etc.), cupola size.....	15.00 to	16.00
No. 1 heavy cast, not cupola size.....	10.00 to	11.00
No. 2 cast (radiators, cast boilers, etc.) .....	10.00 to	11.00

## Cincinnati

CINCINNATI, May 10.

**Fig Iron.**—A number of fair sized sales are reported, but as a general thing the market is extremely quiet. A central Ohio melter bought 1000 tons of malleable at a price said to be \$21.50, lake furnace, and a southern Ohio furnace booked an order for 200 tons of malleable at \$25, furnace. The lake interest referred to above is reported to be quoting foundry iron in all markets on the basis of \$21, furnace, and to be picking up a fair number of orders, it being reported that 100 tons of this iron was disposed of in Cincinnati at a delivered price lower than is being quoted at the furnaces in the Ironton district. It is also reported that a sanitary manufacturing company had purchased 1000 tons of Southern iron for its Kentucky plant at \$22, Birmingham base, this price being made by two different interests which shared the business. The figure mentioned cannot be confirmed locally, but a sale of 700 tons of Southern iron to an Ohio manufacturer was made last week on the basis of \$23, Birmingham. Reports are current that iron is available in the South at \$21 to \$21.50, but no real test of the market for 1.75 to 2.25 silicon has been made recently. On higher silicon differentials are being cut in half, and one furnace on a small inquiry for iron running 2.75 to 3.25, quoted \$24.50, Birmingham. Figuring back the customary differential, this would mean a base price of \$21.50. Some furnaces are reported to be willing to sell to old customers iron at lower than today's market, provided they take a similar amount of high priced iron, shipments on which had been suspended. There is no demand for basic or silvery iron, though in the case of the latter it is reported that some resale materials are available at prices under those quoted by furnaces. Settlement of the wage question and the resumption of operations in a number of local foundries will increase the melt of iron considerably, but most of these shops have a fair tonnage on hand and will not likely be in the market for some time.

Based on freight rates of \$4.50 from Birmingham and \$2.52 from Ironton, we quote f.o.b. Cincinnati:

Southern coke, sil. 1.75 to 2.25 (base).....	\$27.50
Southern coke, sil. 2.25 to 2.75 (No. 2 soft) .....	28.75
Ohio silvery, 8 per cent sil. ....	41.02
Southern Ohio coke, sil. 1.75 to 2.25 (No. 2) .....	27.52
Basic, Northern .....	26.52
Malleable .....	27.52



**Finished Material.**—Inquiry is still light, reinforcing bars being the one exception, and even in this line orders are not heavy. A sale of about 150 tons of bars at the stabilized price of 2.10c. Pittsburgh, was reported this week, and 30 tons of bands at 2.75c. was taken by a local manufacturer. Some resale tonnages of tin plate at 5.25c. per base box are being offered by Eastern brokers, and on an inquiry for light rails a price of 2c. was made by a broker. The sheet market is comparatively quiet, though a number of carload orders are reported. Stabilized prices are being firmly held, though it is said that strenuous efforts are being made by buyers to break the market. This, in the opinion of sellers, is partly responsible for the present dull period. There is very little activity in the structural field. The steel for the Brown Amusement Co.'s theater at Middlesboro, Ky., amounting to approximately 300 tons, will be supplied by the Bourne-Fuller Co. It is understood that the addition to the Lincoln Hotel, Indianapolis, will be in concrete rather than steel. Two buildings for Ohio State University, Columbus, involving 240 tons, are up for bids, which will close on June 1. On a bridge at Nashville, Tenn., the bids greatly exceeded the estimates, and it is understood new proposals will be called for. Plant operations will not change much during the coming week. The Whitaker-Glessner Co. at Portsmouth has 12 sheet mills in operation and five open-hearth furnaces on. The American Rolling Mill Co., Middletown, has eight mills and three furnaces in operation. The plants of the Andrews Steel Co. and Newport Rolling Mill Co., Newport, Ky., will be down the coming week, but will probably start up on a partial operation the following week.

**Warehouse Business.**—Local warehouses report an improvement in business during the past week. This is particularly true of structural materials, as there is a large amount of small work being fabricated in local shops. Reinforcing bars are also in fair demand. Galvanized sheets have been advanced to 6.50c. base, for No. 28 gage, but blue annealed and black sheets remain as before. One jobber is quoting wire nails at \$3.60 per keg, but the majority of warehouses are now quoting \$3.75, and some \$3.85.

Iron and steel bars, 3.35c. base; hoops and bands, 4.05c. base; shapes, 3.45c. base; plates, 3.45c. base; reinforcing bars, 3.42½c. base; cold rolled rounds, 1½ in. and larger, 4.85c.; under 1½ in. and flats, squares and hexagons, 5.35c.; No. 10 blue annealed sheets, 4.35c.; No. 28 black sheets, 5.50c.; No. 28 galvanized sheets, 6.50c.; wire nails, \$3.60 to \$5.85 per keg base; No. 9 annealed wire, \$3.60 per 100 lb.

**Coke.**—There is some activity in the coke market, but sales are confined almost entirely to one or two carloads, the settlement of the wage deadlock existing in the jobbing foundry industry will likely result in an increased demand, as a number of those affected resumed operations Monday and expect to run at least three days a week. Prices are unchanged from last week, Connellsville foundry being quoted at \$4.50 to \$5.50; wise county foundry \$6 to \$7; and New River \$8.50 to \$10.

**Old Material.**—There is no activity in the scrap market and consumers are holding up shipments. Resumption of operations in local foundries is expected to stimulate the demand for cast scrap, as most of the shops have not a big tonnage on yard. Prices are unchanged.

We quote dealers' buying prices:

Per Gross Ton	
Bundled sheets	\$7.50 to \$8.50
Iron rails	16.50 to 17.50
Relaying rails, 50 lb. and up	30.50 to 31.50
Revolving steel rails	11.50 to 12.50
Heavy melting steel	10.00 to 11.00
Steel rails for melting	10.50 to 11.50
Car wheels	14.00 to 15.00

Per Net Ton	
No. 1 railroad wrought	10.00 to 11.00
Cast borings	5.00 to 5.50
Steel turnings	3.50 to 4.00
Railroad cast	13.50 to 14.50
No. 1 machinery	13.50 to 14.50
Burnt scrap	8.00 to 9.00
Iron axles	20.00 to 20.50
Locomotive tires (smooth inside)	10.00 to 11.00
Pipes and flues	7.50 to 8.00

## Buffalo

Buffalo, May 10.

**Pig Iron.**—No change has occurred in the local market. Sales have fallen off and last week's business was trivial. A number of sales of carload lots have been made at \$25 by a producer who has maintained a \$26 price for several weeks. A better movement on old contracts is reported. This producer has one furnace in blast and expects no immediate change in operation. Its total of small orders is placed at 1700 tons. A small sale of No. 1X at \$28 is reported. There is evidence that a number of foundries are disposing of resale iron. Less than 100 tons has been sold by one furnace and the total of inquiry figured on was less than 1000 tons. Existing freight rates will not permit this producer to quote at points far removed from Buffalo. Eastern freight schedules will have to be adjusted before it will seek business at seaboard or nearby points. The New York State Barge Canal is of no value as a shipping medium to pig iron shippers; the rate to New York is \$3.25 per ton and to Long Island Sound points \$3.75. Added charges for loading and unloading make an excessive rate and in most instances foundries have switching charges before the iron is available for use. Disposition to order for future delivery is more apparent. Orders for June and July delivery have been booked by one furnace, and while the quantities are of little importance, it is noted that a few buyers are more encouraged and feel that the market will not go lower.

We quote f.o.b. dealers' asking prices per gross ton Buffalo as follows:

No. 1 foundry, 2.75 to 3.25 sil.	\$28.00 to \$29.00
No. 2X foundry, 2.25 to 2.75 sil.	26.25 to 27.25
No. 2 plain, 1.75 to 2.25 sil.	25.00 to 27.00
Basic (nominal)	26.00 to 27.00
Malleable (nominal)	27.00 to 28.00
Lake Superior charcoal	38.00

**Finished Iron and Steel.**—The awarding of a large structural job and the likelihood of action on the school program is the only important development in this market. The Statler Hotel Co. has contracted for 8415 tons of structural shapes for use in the new hotel. The Fort Pitt Bridge Co., Pittsburgh, took the job at a price said to have been \$69 per ton. Changes in the steel requirements of the building code authorized by the Buffalo City Council permitted the Statler Hotel Co. to use 18,000 lb. of fiber stress per sq. in. in place of 16,000 previously allowed. Work on the hotel was started within a few minutes after the resolution was passed. The hotel owners told council members the code limiting fiber stress to 16,000 lb. was drawn at a time when Bessemer steel was used on building operations, but that the open-hearth product now marketed bore a heavier load. The general structural business is unusually quiet because of labor disturbances, but bar and sheet business is slightly improved. Several mills are working on a number of reinforcing bar inquiries; one for 2000 tons for Cleveland; another for 1100 tons for an elevator in Brooklyn. A number of small orders for prompt rolling in bars has been received. A bolt inquiry of several carloads is reported. One mill is filling a few bar orders from stock and sees no immediate possibility of reopening its bar mill. A wire-making plant now turning out automobile wire is operating at 80 per cent capacity and has had continued better business since April 1. Conditions justify full operation within the month. Another wire maker continues at 50 per cent of normal with no expected change in sight.

**Warehouse Business.**—Orders were more frequent for a few days only. Structural business is quiet, due to labor disturbances. Better business in bars and fair movement in sheets are reported. Prices have not been changed.

We quote warehouse prices f.o.b. Buffalo as follows: Structural shapes, 3.25c.; plates, 3.25c.; plates No. 8 gage, 4.10c.; soft steel bars and shapes, 3.15c.; hoops, 3.85c.; blue annealed sheets, No. 10 gage, 4.15c.; galvanized steel sheets, No. 28 gage, 6.30c.; black sheets, No. 28 gage, 5.80c.; No. 9 gage annealed wire, 4.35c.; cold rolled strip steel, 8.15c.

**Coke.**—A fair movement is reported; orders are mostly for carloads. Inquiry has picked up.

**Old Material.**—The only activity is in heavy melting

steel. The manufacturer of railroad equipment who has purchased about 10,000 tons at \$13 within a month will buy more at \$13. These purchases have not been made because of any rush of orders but because the market in this particular material is thought to have reached the lowest ebb.

We quote dealers' asking prices per gross ton, f.o.b. Buffalo, as follows:

Heavy melting steel.....	\$12.50 to \$13.00
Hydraulic compressed.....	9.00 to 9.50
Low phos., 0.04 and under.....	17.00 to 18.00
No. 1 railroad wrought.....	13.00 to 14.00
Car wheels.....	16.00 to 17.00
Railroad malleable.....	11.50 to 12.50
Machine shop turnings.....	7.00 to 8.00
Heavy axle turnings.....	10.00 to 11.00
Clean cast borings.....	7.00 to 8.00
Locomotive grate bars.....	11.50 to 12.50
Wrought pipe.....	9.50 to 10.50
No. 1 busheling.....	9.50 to 10.50
Stove plate.....	15.00 to 16.00
Bundled sheet stampings.....	7.00 to 8.00
No. 1 machinery cast.....	18.00 to 18.50

## Birmingham

BIRMINGHAM, ALA., May 10.

The Birmingham iron market has remained at the \$23 base with more firmness than at any other low since the decline began. Only one maker reported a good business during the week, but that was exceptionally large at this time. Total sales aggregated 2500 tons and one lot was 1000 tons sold to a Southern pipe interest. Other lots were from car loads to 200 and 400 tons. Pipe makers were the principal buyers; whether high pressure or soil pipe makers was not stated. Other makers reported only a few lots of small tonnage for prompt shipment. The market tone was not as strong as during the preceding week and at the close there was less buoyancy of feeling, May having apparently shown a disposition to reverse the order of April, which was on the upgrade. The yard stock showing was also disappointing in presenting a decided increase in spite of the record low of production. Stocks on yards May 1 compared with April 1 were as follows: foundry, 139,161 and 142,675 tons; machine cast, 37,209 and 21,353; basic 45,012 and 33,252; total, 221,531 and 203,513. Only one merchant foundry producer shipped a one-furnace make during the month of April. Two others shipped each one half of a one-stack make. There was really an increase in merchant foundry iron, a considerable tonnage of it being in the machine cast column. Production in April was the lowest since the same month in 1908 and will be still lower this month with only eight stacks going all the time and nine a part of the time. The Tennessee company blew out its one foundry stack and the stack at Bessemer on ferromanganese May 1 and only the five on basic at Ensley are active. The Sloss-Sheffield Steel & Iron Co., Alabama Co. and Woodward Iron Co., have one each on merchant foundry and the Gulf States Steel Co. one on basic for company use.

We quote per gross ton f.o.b. Birmingham district furnace, as follows:

Foundry, sil 1.75 to 2.25.....	\$23.00
Basic.....	22.00
Charcoal.....	35.00

**Cast Iron Pipe.**—High pressure pipe makers maintain the nominal schedule of \$55 base, although it is known that transactions run under it and as far below as \$50 with even less offered on large sizes for large contracts. Production, in face of the poor lettings recently, has decreased. The Anniston shop of the United States Cast Iron Pipe & Foundry Co. is down and the Bessemer shop is running on stock. The North Birmingham plant is the only one now on new business. Other water pipe concerns are far from normal. Soil pipe makers are in keen competition for the business that is offered and have reduced the scale to \$45 with those very anxious for business shading that level. New business is less than at this time in April by 50 per cent.

**Finished Material.**—The Gulf States Steel Co. resumed at its blast furnace in Gadsden on Monday with four units of the open hearth department following a few days later. The blooming mill is on a four-day turn and the wire and bar mills at around 50 per cent. President Chas. A. Moffett says resumption at

furnace and open hearth department is as much to keep men employed as on account of new business. The first week in May did not bring as much new business to independent steel mills as the first week in April. The steamships Howick Hall and Selma City left Mobile recently with 15,000 tons of rails and plates for China and Japan from the Birmingham mills of the Tennessee company. The steamship Anniston City, just launched at Mobile, will make its maiden trip to Pacific coast with Birmingham steel and iron products. The vessel is to make all Pacific ports, going as far north as Vancouver.

**Coal and Coke.**—Coal production in Alabama has dropped to 175,000 tons per week compared with a normal of 300,000. Coke is fairly active with many orders for prompt movement, but still lacks steadiness, consumers coming in the market only for what is needed to work up contracts in hand and then they drop out again. Base remains at \$7 and up for standard foundry makes.

**Old Material.**—There has been a slightly larger movement of scrap from yards on release orders than in some time and No. 1 cast holds more firmly, but the old material market is still weak and listless.

We quote per gross ton f.o.b. Birmingham district yard as follows:

Steel rails.....	\$13.00 to \$13.50
No. 1 heavy steel.....	12.50 to 13.00
No. 1 cast.....	18.00 to 19.00
Car wheels.....	18.00 to 19.00
Tramcar wheels.....	16.00 to 17.00
No. 1 wrought.....	15.00 to 16.00
Stove plate.....	12.00 to 13.00
Cast iron borings.....	5.00 to 6.00
Machine shop turnings.....	5.00 to 6.00

## Boston

BOSTON, May 10.

**Pig Iron.**—Less than 500 tons of iron was sold on this market the past week. Sales included 100 tons No. 1X eastern Pennsylvania to an eastern Massachusetts foundry at \$25.50 furnace, 100 tons No. 2X eastern Pennsylvania to another eastern Massachusetts consumer at \$25 furnace, and two cars resale Northern No. 2X to Massachusetts interests at \$27 furnace. Additional tonnages of contract iron have been ordered in by foundries and further adjustments of contracts are reported, while almost no resale iron is available. The market, therefore, is working into a favorable position from the furnace standpoint at least. A wage settlement with Greater Boston molders is expected this week, possibly on a \$6 per day basis, as against \$7.20 as at present. Foundries outside Boston have made such a settlement, the Saco-Lowell Shops, Lowell, Mass., having done so this week. With the wage question settled, foundry owners look for increased business. Delivered pig iron prices follow:

East. Penn., sil. 2.25 to 2.75.....	\$28.56 to \$29.06
East. Penn., sil. 1.75 to 2.25.....	27.56 to 28.06
Buffalo, sil. 2.25 to 2.75.....	30.46 to 31.71
Buffalo, sil. 1.75 to 2.25.....	29.46 to 30.46
Virginia, sil. 2.25 to 2.75.....	32.58 to 33.58
Virginia, sil. 1.75 to 2.25.....	31.58 to 32.58
Alabama, sil. 2.25 to 2.75.....	34.91 to 36.91
Alabama, sil. 1.75 to 2.25.....	33.66 to 35.66

**Warehouse Business.**—Business continues limited, but prices appear steadier due to the fact that surplus stocks of cold-rolled and other kinds of steel and iron seem to have been liquidated. Mill representatives are still competing with jobbers for small tonnages, consequently the latter are not willing to place orders with mills for second half delivery. Local interests heretofore quoting wire nails on a \$4.10 per keg base have raised prices to \$4.35 base. A shortage of some sizes exists in jobbers' stocks.

Jobbers now quote: Soft steel bars, \$3.18 per 100 lb. base; flats, \$4.18 to \$4.28; concrete bars, \$3.18 to \$3.45½; tire steel \$4.25 to \$4.75; spring steel, open hearth, \$5.50; crucible, \$11.50; steel bands, \$3.83 to \$4.48; steel hoops, \$4.38; toe calk steel, \$5.25; cold rolled steel, \$4.65 to \$5.15; structural, \$3.18 to \$3.28; plates, \$3.28 to \$3.50; No. 10 blue annealed sheets, \$4.53; No. 28 black sheets, \$5.85; No. 28 galvanized sheets, \$6.85; refined iron, \$3.18 to \$5; best refined, \$5; Wayne iron, \$8.50; Norway iron, round, ¼-in. to 2½-in. 8c per lb. net; other sizes, 10c. base.

**Coke.**—The Providence Gas Co., Providence, R. I., is invoicing foundry coke shipments this month on a basis of \$5.25 per net ton, Connellsville, this being the same price that prevailed in April. The New England Coal & Coke Co. continues to quote on a \$11.41 delivered



basis for contract foundry coke where the local freight does not exceed \$3.40, and at \$11.91 for spot. Little New England product is selling for more than \$11.41, and shipments from ovens do not suggest increased foundry consumption. Connellsville foundry coke is offered on this market at \$5 to \$5.50 ovens, with few takers.

**Cast Iron Pipe.**—The city of Boston recently awarded the Warren Foundry & Machine Co., Phillipsburg, N. J., 170 tons 8-in. cast iron water pipe, 400 tons 10-in., 320 tons 12-in., 400 tons 16-in. and 615 tons 36-in. at \$59.75 per ton, and 10 tons of special castings for the water department at \$150 for the lot. One concern bid \$60.80 per ton for the cast iron pipe, another \$61, and another \$63.87 for the 8, 10 and 12-in. and \$62.87 for the 16 and 36-in. pipe.

**Old Material.**—Sales of machinery cast are limited to an occasional car lot, usually in the neighborhood of \$18.50 to \$19 delivered, which brings the local yard price down to about \$16 to \$18 per gross ton. Dealers will not pay more than 1/2c. per lb. for cast. The market on stove plate apparently is around \$11 f.o.b. here or elsewhere in New England, but there practically is no demand for it. Almost no mill orders for material are in this market. A small tonnage of turnings was bought by a rolling mill this week, however, at about former prices. The general tendency of prices is downward, nevertheless, due to the lack of consumption. A Massachusetts consumer has purchased 300 tons selected re-rolling rails at \$15 to \$15.50 delivered, bringing local yard prices down to around \$13, but dealers as a rule will not pay more than \$10 for them. Local yard prices, per gross ton, follow:

No. 1 heavy melting steel.....	\$5.50 to	\$6.50
No. 1 railroad wrought.....	10.00 to	11.00
No. 1 yard wrought.....	8.00 to	9.00
Wrought pipe (1 in. in diameter, over 2 ft. long).....	7.00 to	7.50
Machine shop turnings.....	3.00 to	3.50
Cast iron borings, rolling mills.....	3.00 to	3.50
Cast iron borings, chemical.....	3.00 to	3.50
Heavy axle turnings.....	4.00 to	5.00
Blast furnace borings and turnings.....	2.50 to	3.00
Forged scrap and skeleton.....	5.00 to	5.50
Street car axles and shafting.....	13.50 to	14.50
Car wheels.....	19.00 to	20.00
Machinery cast.....	16.00 to	18.00
No. 2 cast.....	14.00 to	15.00
Stove plate.....	11.00 to	12.00
Railroad malleable.....	11.00 to	11.50
Re-rolling rails.....	11.00 to	13.00

## St. Louis

St. Louis, May 10.

**Pig Iron.**—There has been a little more interest shown in the pig iron market during the past week, with a considerable number of inquiries for car lots and up to 100 tons for early and forward delivery. The settlement of the molders' scale troubles in the stove industry has improved the general feeling in that division, but there have been no large transactions nor any large inquiries for pig iron. The local stove industry is having some little delay in getting all its labor problems fully adjusted and while there has been no actual trouble there has been difficulty in getting all the different labor divisions in line to put the plants at work. These troubles will be ironed out, however, and improved operations are expected shortly. Prices on pig iron remain unchanged.

**Finished Iron and Steel.**—The warehouses report business on about the same level as for some weeks. The only buying that is being done seems to be for imperative needs.

For stock out of warehouse we quote as follows: Soft steel bars, 3.22 1/2c.; iron bars, 3.22 1/2c.; structural material, 3.32 1/2c.; tank plate, 3.32 1/2c.; No. 10 blue annealed sheets, 4.22 1/2c.; No. 28 black sheets, cold rolled, one pass, 5.50c.; No. 28 galvanized sheets, black sheet gage, 6.50c.

**Coke.**—There has been increased activity in coke, with some orders placed for forward delivery, in one or two cases through the remainder of the year.

**Old Material.**—No scrap business is appearing and all interests are fighting shy of commitments of any character. Some small lots up to 100 tons are moving, but these have no market effect. Some nibbling at the market by the Kansas City Bolt & Nut Co. is reported,

also by the St. Louis Screw Co., but no large transaction. Other industries show no increase in activity. Lists out include 1200 tons from the Missouri, Kansas & Texas; 850 from the Mobile & Ohio and 1100 from the Frisco.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district, as follows:

Per Gross Ton	
Iron rails.....	\$13.00 to \$13.50
Steel rails, re-rolling.....	12.50 to 13.00
Steel rails, less than 3 ft.....	12.50 to 13.00
Re-laying rails, standard section, subject to inspection.....	27.50 to 32.50
Car wheels.....	12.50 to 13.00
No. 1 railroad heavy melting steel.....	12.50 to 13.00
Heavy shoveling steel.....	10.50 to 11.00
Ordinary shoveling steel.....	10.00 to 10.50
Frogs, switches and guards cut apart.....	12.50 to 13.00
Ordinary bundled sheet.....	5.00 to 5.50
Per Net Ton	
Heavy axle and tire turnings.....	5.00 to 5.50
Iron angle bars.....	10.50 to 11.00
Steel angle bars.....	11.00 to 11.50
Iron car axles.....	20.50 to 21.00
Steel car axles.....	14.00 to 14.50
Wrought arch bars and transoms.....	14.00 to 14.50
No. 1 railroad wrought.....	10.50 to 11.00
No. 2 railroad wrought.....	9.50 to 10.00
Railroad springs.....	11.00 to 11.50
Steel couplers and knuckles.....	11.00 to 11.50
Locomotive tires, 42 in. and over, smooth inside.....	9.00 to 9.50
No. 1 dealers' forge.....	8.00 to 8.50
Cast iron borings.....	6.50 to 7.00
No. 1 busheling.....	10.50 to 11.00
No. 1 boilers, cut to sheets and rings.....	6.00 to 6.50
No. 1 railroad cast.....	12.00 to 12.50
Stove plate and light cast.....	12.00 to 12.50
Railroad malleable.....	10.00 to 10.50
Agricultural malleable.....	10.00 to 10.50
Pipes and flues.....	7.00 to 7.50
Railroad sheet and tank.....	5.00 to 5.50
Railroad grate bars.....	7.00 to 7.50
Machine shop turnings.....	5.00 to 5.50
Country mixed.....	7.00 to 7.50
Uncut railroad mixed.....	8.00 to 8.50
Horseshoes.....	11.00 to 11.50
Railroad brake shoes.....	8.00 to 8.50

## Cleveland

CLEVELAND, May 10.

**Iron Ore.**—Ore firms are getting some inquiries from furnace men regarding prices but so far not an inquiry has come from a consumer who is ready to buy, and until definite inquiries develop, prices will not be named. Sellers do not look for any buying before June. The ore balance on Lake Erie docks May 1 amounted to 8,093,854 gross tons as compared with 6,204,556 tons on the same day a year ago. The largest amount on docks on May 1 during any previous year was in 1911, when the dock balance was 6,676,820 tons. Shipments from Lake Erie docks again fell off in April, being only 282,571 tons as compared with 220,871 tons in March and with 1,385,848 tons in April, 1920. April shipments from upper lake ports were 176,211 tons, but these figures included five cargoes that were loaded and are still being held at upper lake ports. Receipts at Lake Erie ports during April were 35,366 tons and at Lake Michigan ports 30,965 tons. No cargoes were shipped from Marquette and Escanaba during the month. The Pittsburgh Steamship Co. now has all its vessels in operation that will be placed in commission this year, some starting late last week and the remainder early this week. Independent shippers have as yet started but few boats. While mining companies assume that the 20 per cent wage reduction made by the Steel Corporation will apply to the miners employed by its subsidiary, the Oliver Iron Mining Co., they have received no definite information on this subject. Many of the independent mining companies originally made a 15 per cent wage reduction, but some of these have made further cuts and others a 25 per cent reduction, so that at present the average wage reduction of the independent mining companies is estimated at 20 per cent. Those that have reduced wages only 15 per cent are expected to make further reductions.

We quote delivered lower lake ports: old range Bessemer, \$7.45; old range non-Bessemer, \$6.70; Mesabi Bessemer, \$7.20; Mesabi non-Bessemer, \$6.55.

**Pig Iron.**—Sales are being made in about the same volume as in the previous few weeks, being all for early shipment and mostly in small lots. Consumers are buying only for their immediate requirements. Prices on foundry iron have settled down to virtually a \$24 basis in the lake and Valley districts, although

the \$24.50 and \$25 prices have not disappeared. However, the market lacks firmness and there are persistent reports that \$24 is being shaded. A local interest that quoted \$24 on an inquiry from the National Transit Co., Oil City, Pa., for 800 to 1600 tons of foundry iron, was advised that a lower quotation had been received and a 500-ton lot of malleable iron recently placed in this territory is understood to have gone at less than \$23.50. Further price concessions on Southern iron have come out on an inquiry for 500 tons for the Louisville plant of the Standard Sanitary Mfg. Co., which received quotations of \$22 for 1.75 to 2.25 silicon iron and \$23.25 for 2.25 to 2.75 silicon. One local interest reports sales during the week aggregating 1500 tons, all at \$24. These include a 300-ton lot of foundry iron taken by a Michigan implement manufacturer and a number of smaller sales. A sale of 500 tons of foundry iron was made by a western New York furnace at \$24.50 for Eastern shipment. For Cleveland delivery local furnaces quote No. 2 foundry iron at \$25. Reports indicate a slight increase in shipping orders. The Hanna Furnace Co. blew out its Cherry Valley furnace at Leetonia, Ohio, May 4.

We quote delivered Cleveland as follows, based on the new freight rates, these being a 56c. switching charge for local iron, a \$1.96 freight rate from Valley points, a \$3.36 rate from Jackson and \$6.67 from Birmingham:

Basic .....	\$24.96
Northern No. 2 fdy., sil. 1.75 to 2.25 .....	25.50
Southern fdy., sil. 2.25 to 2.75 .....	29.92 to 32.92
Ohio silvery, sil. 8 per cent. ....	41.86
Standard low phos., Valley furnace. .	40.00

**Finished Iron and Steel.**—There is little activity in any line of finished steel. Mills are getting a few orders, but they are mostly for small lots, many being for less than carloads. The two outstanding features of the market are that the stabilized prices are being maintained and that buyers are not confident that present prices will hold. Consequently they are keeping their stocks very low and are buying only for immediate requirements. An inquiry has come out for 3000 tons of plates for oil tank work, but the order that brought out this inquiry has not yet been placed. Cleveland building activity is still tied up by a general strike and no new inquiries have come out for structural material. Inquiries previously noted have brought out unusually low prices. The plant of the American Bottle Co., Newark, Ohio, requiring 750 tons, is reported to have developed quotations as low as \$65 and leads to the belief that fabricators had protection on plain material before the recent price advance by independent mills. Although mills are adhering to 2.10c. for mild steel reinforcing bars, re-rolling mills are still quoting 1.90c. for hard steel bars.

Cleveland warehouses quote steel bars and small shapes at 2.99c.; plates, 3.09c.; structural shapes, 3.09c.; No. 9 galvanized wire, 4.45c.; No. 9 annealed wire, 3.75c.; No. 28 black sheets, 4.80c.; No. 28 galvanized, 5.70c.; No. 10 blue annealed, 3.85c. to 4c.; hoops and bands, 3.69c.; shafting, 4.25c.

**Bolts, Nuts and Rivets.**—The demand for bolts and nuts shows some gain, but orders are only for small lots. Prices are firm. The rivet market continues dull and prices are weak. For structural rivets 3.40c. Pittsburgh and for boiler rivets, 3.50c. are now generally recognized as the prices for fair orders, but makers are getting \$2 a ton higher for small lots. A round lot inquiry would probably bring out a concession from the prices named above.

**Coke.**—Small lot sales of coke are being made at \$5.50. Some makes are to be had at lower prices and other brands are quoted as high as \$7.

**Semi-Finished Steel.**—The McKinney Steel Co. booked orders during the week for several thousand tons of sheet bars, billets and slabs, and started up two of its open hearth furnaces this week. This plant had been entirely shut down for several months.

**Sheets.**—The demand for sheets is not active. Outside of the recent buying by the Ford Motor Co., little business is coming from the automobile industry. One of the Ford inquiries was for 4000 tons of heavy sheets for frames, but it is understood that this company placed only 1500 tons of these sheets, buying only for 30 days' requirements instead of for three months. Mill prices are being firmly maintained, but brokers are still offer-

ing sheets at \$2 a ton below regular prices. Jobbers are keeping stocks low, being doubtful whether present prices will hold.

**Old Material.**—The improved tone in the scrap trade previously noted continues, but there is little activity. A Cleveland mill which has recently been a buyer of borings and turnings purchased 4000 tons additional during the week at \$8.50 to \$8.75. Heavy melting steel has sold for Steubenville delivery at \$14. Dealers are asking \$13.50 for round lots of this grade, but small lots can be purchased at around \$11 and dealers are picking up small lots at \$9 to \$10. Dealers are still buying other grades of scrap at low prices for yard stocks, but not a great deal is being offered.

We quote delivered consumers' yards in Cleveland and vicinity as follows:

Heavy melting steel .....	\$11.00 to \$11.50
Steel rails under 3 ft. ....	13.50 to 14.00
Steel rails, rerolling .....	15.00 to 16.00
Iron rails .....	13.00 to 14.00
Iron car axles .....	20.00 to 21.00
Low phosphorus melting scrap .....	14.00 to 15.00
Cast borings .....	8.50 to 8.75
Machine shop turnings .....	6.00 to 6.50
Mixed borings and short turnings .....	8.50 to 8.75
Compressed steel .....	10.00 to 10.50
Railroad wrought .....	12.00 to 13.00
Railroad malleable .....	13.00 to 14.00
Light bundled sheet stampings .....	5.00 to 6.00
Steel axle turnings .....	10.00 to 10.50
No. 1 cast .....	18.00 to 19.00
No. 1 busheling .....	7.50 to 8.00
Drop forge flashings, over 10 in. ....	5.50 to 6.00
Drop forge flashings, under 10 in. ....	6.00 to 6.50
Railroad grate bars .....	15.00 to 15.50
Stove plate .....	15.00 to 15.50
Pipes and flues .....	7.00 to 8.00

## May Settle Ore Rate Controversy

CLEVELAND, May 10.—There is a possibility that the complaint filed before the Interstate Commerce Commission by the Lake Superior Iron Ore Association asking for a reduction of ore rates from the mines will be settled out of court. An official of one of the Northern Railways, acting as representative for the various railroads interested, has approached the ore men, asking that a conference be held to discuss the railroad question. Some of the ore interests agreed to the plan and others took the stand that the Michigan and Wisconsin railroads should withdraw the recent 15c. rate advance on old range ore before they consented to a conference. Further developments are expected as soon as the representative reports the result of the conference to the railroads. The move by the railroads leads to the impression that they are willing to make concessions and reach an agreement on rate reductions without allowing the case to go to the Interstate Commerce Commission which has set May 31 as the date for a hearing on the complaint, to be held in Chicago.

## Philadelphia

PHILADELPHIA, May 10.

Another quiet week in the iron and steel market has brought no indication of what the future holds in store. While few orders are being placed in the aggregate, the mills which are operating are able to maintain operations at about the rate which has prevailed for some weeks, ranging from 25 to 40 per cent. Demand is not broadening in any sense, though the feeling continues that the general situation is a bit more hopeful. Those who profess a degree of optimism are unable to find any tangible basis upon which to predict improving conditions of trade.

One of the largest sales of the past week was a few hundred tons of steel scrap. This tells the story of the present market situation. There are no projects of any size in prospect.

**Pig Iron.**—Small tonnages for prompt shipment continue to rule. Demand is almost solely for foundry grades, on which quoted prices range as follows: No. 2 plain, \$24 to \$25; No. 2 X, \$25 to \$26; No. 1 X, \$26.50 to \$27, all f.o.b. eastern Pennsylvania furnace. There is a little demand for forward shipment, but furnaces do not appear to be willing to sell ahead at present



prices. One furnace will probably name a price shortly for third quarter shipment.

East. Pa. No. 2 plain, 1.75 to 2.25...	\$24.84 to \$26.26
East. Pa. No. 2X, 2.25 to 2.75 sil...	25.84 to 26.76
Virginia No. 2 plain, 1.75 to 2.25 sil...	31.74 to 32.74
Virginia No. 2X, 2.25 to 2.75 sil...	32.99 to 33.99
Basic deliv. Eastern Pa.....	25.00
Gray forge .....	25.26
Standard low phos. (f.o.b. furnace)...	38.00
Malleable .....	29.00
Copper bearing low phos. (f.o.b. furnace) .....	35.00

**Ferroalloys.**—There is no demand in this market. Ferromanganese is quoted at \$90, delivered, and spiegel-eisen at \$32 to \$33, furnace.

**Semi-Finished Steel.**—Sales of semi-finished steel are almost negligible. Prices quoted are \$37, Pittsburgh, for rerolling billets and \$42, Pittsburgh, for forging quality.

**Finished Iron and Steel.**—The demand for finished steel products is extremely light, there being no feature worthy of note. Sales continue on a hand-to-mouth basis and the tonnages are very small. Eastern mills are operating at about the same rate as in recent weeks, there being no improvement in any line. Structural shapes and sheets are in better demand than plates and bars. Prices remain firm, the only exception being quotations of about 1.75c. or 1.80c. on concrete reinforcing bars rolled from scrap steel. So far as the leading mills are concerned, there appears to be no deviation of any kind from the uniform schedule of prices recently adopted. Bar iron is still quoted at 2c., Pittsburgh, and demand is light.

**Warehouse Business.**—No improvement in buying from stock is reported. Prices are as quoted a week ago, as follows:

Soft steel bars and small shapes, 3.20c.; iron bars (except bands), 3.20c.; round edge iron, 3.50c.; round edge steel, iron finish, 1½ in. x ½ in., 3.50c.; round edge steel, planished, 4.25c.; tank steel plates, ¼-in. and heavier, 3.30c.; tank steel plates, 3/16-in., 3.55c.; blue annealed steel sheets, No. 10 gage, 4.20c.; light black steel sheets, No. 28 gage, 5.25c.; galvanized sheets, No. 28 gage, 6.25c.; square twisted and deformed steel bars, 3.20c.; structural shapes, 3.30c.; diamond pattern plates, 5.25c.; spring steel, 5.00c.; round cold-rolled steel, 4.60c.; squares and hexagons, cold-rolled steel, 5.10c.; steel hoops, No. 13 gage and lighter, 4.25c.; steel bands, No. 12 gage to 3/16-in. inclusive, 3.85c.; iron bands, 4.50c.; rails, 3.20c.; tool steel, 12c.; Norway iron, 8c.; toe steel, 4.50c.

**Old Material.**—A slight flurry in the scrap market was caused by the offer of an Eastern steel company of \$12, delivered, for No. 1 heavy melting steel. At this writing only a few hundred tons have been purchased, the result of the offer being to cause scrap dealers to stiffen considerably in their views as to prices. It has been recognized that scrap prices have reached a point where the slightest buying activity would put them up. Fairly good prices were realized by the Pennsylvania Railroad on its May list of scrap. Fully 10,000 tons of steel scrap on the list was awarded to steel companies. Other grades of scrap on the list went to dealers, who are accumulating for an expected rise in prices. We quote for delivery at consuming points in this district as follows:

No. 1 heavy melting steel.....	\$12.00
Steel rails, rerolling.....	\$15.50 to 16.00
No. 1 low phos., heavy 0.04 and under	16.00 to 18.00
Car wheels .....	16.00 to 18.00
No. 1 railroad wrought.....	15.00 to 16.00
No. 1 yard wrought.....	14.00 to 15.00
No. 1 forge fire.....	10.00 to 10.50
Bundled skeleton .....	8.00 to 8.50
No. 1 busheling.....	13.00 to 14.00
No. 2 busheling.....	10.00 to 11.00
Turnings (short shoveling grade for blast furnace use).....	8.00 to 8.50
Mixed borings and turnings (for blast furnace use).....	7.50 to 8.00
Machine-shop turnings (for rolling mill and steel works use).....	8.50 to 9.00
Heavy axle turnings (or equivalent).....	10.00 to 11.00
Cast borings (for rolling mills).....	8.50 to 9.00
Cast borings (for chemical plants).....	10.50 to 11.50
No. 1 cast.....	18.00 to 19.00
Railroad grate bars .....	13.00 to 13.50
Stove plate (for steel plant use).....	13.00 to 13.50
Railroad malleable .....	15.50 to 16.50
Wrought iron and soft steel pipes and tubes (new specifications).....	12.00 to 13.00
Iron car axles.....	No market
Steel car axles.....	No market

This week's operating schedule at the Yorkville tin plate mills of Wheeling Steel & Iron Co., calls for the operation of 18 of its 24 mills. For the past two weeks the company has been operating 12 of its 24 mills.

## GERMAN MARKET PRICES

### Declines Chiefly in Semi-finished Material—Castings Lower

BERLIN, GERMANY, April 17.—Official prices are unchanged, but negotiations will soon be opened with a view of cutting pig iron prices. A reduction in the latter is almost certain. Meanwhile some downward revisions have taken place in actual domestic business, chiefly in semi-finished steel, as indicated in the accompanying table.

Prices in Marks per Metric Ton  
(Per 100 Lb.)

	Apr. 17	Apr. 9	Mar. 19
Ingots, Thionville .....	1700	\$1.15	1750
Blooms, Dortmund .....	1800	1.22	1800
Billets, Ruhrort .....	1800	1.22	1900
Structural shapes, Burbach.....	2300	1.55	2300
Heavy rails, ex mill.....	2500	1.69	2500
Light rails, ex mill.....	2400	1.62	2400
Heavy ties .....	2550	1.72	2550
Light ties .....	2575	1.74	2575
Bar iron, Oberhausen.....	2300	1.55	2300
Hoop iron, Oberhausen.....	2500	1.69	2700
Thick sheets, Essen.....	2500	1.69	2500
Medium sheets, Siegen or Dillingen .....	2900	1.96	2800
Thin plates, Siegen or Dillingen .....	2800	1.89	2850
Wire, ex mill.....	2300	1.55	2300

Foundries are charging about 3 to 3.50 marks per kilo for pig iron castings not involving too much core molding, (2c. to 2.35c. per lb.) while 10.50 to 11 m. per kilo are charged for malleable castings, (7c. to 7½c. per lb.)

## British Iron and Steel Market

### Coal Strike Still Paralyzes Business—Tin Plates Steady

(By Cable)

LONDON, ENGLAND, May 9.

General conditions are unaltered as the coal strike continues. Supplies of Cleveland foundry iron are diminishing and some sellers are now insisting that buyers of No. 3 take proportional quantities of No. 4 foundry and forge. Export inquiry is negligible. East Coast mixed numbers have been lowered 20s. (\$3.98) for home sales, but the reduction was not sufficient to stimulate any new buying. Tees pig iron exports for April were only 5023 tons. The total for January to April amounted to 34,471 tons.

Steel works everywhere are idle, with small inquiry for home and export business. Continental wire rods have been sold at £11 10s. (\$45.77) c.i.f. Japan.

Tin plates are steady, with fair demand for stock plates and wasters. Prime oil sizes to the extent of 30,000 boxes have sold at 27s. (\$5.37) f.o.b. Wales production has practically ceased. Black sheets are easier owing to cheap Continental offerings.

We quote per gross ton except where otherwise stated, f.o.b. maker's works, with American equivalent figured at \$3.98 per £1 as follows:

Durham coke .....	£2 2	\$8.36
Cleveland basic .....	6 0	23.88
Cleveland No. 1 foundry.....	6 5	24.87
Cleveland No. 3 foundry.....	6 0	23.88
Cleveland No. 4 foundry.....	5 19	23.68
Cleveland No. 4 forge.....	5 17½	23.38
East Coast mixed.....	8 0 & £8 5*	31.84 & 32.83
Ferromanganese .....	18 0 to 18 10	71.64 to 73.63
Ship plates .....	17 0 to 19 0	67.66 to 75.62
Boiler plates .....	24 0 to 25 0	95.52 to 99.50
Tees .....	16 0 to 18 10	63.68 to 73.63
Channels .....	15 5 to 17 5	60.69 to 68.65
Beams .....	15 0 to 17 10	59.70 to 69.65
Round bars, ¾ to 3 in.....	15 10 to 16 10	61.69 to 65.67
Rails, 60 lb. and up.....	13 0 to 15 0	51.74 to 59.70
Billets .....	13 0 to 14 0	51.74 to 55.72
Sheet and tin plate bars, Welsh .....	12 15 to 13 0	50.74 to 51.74
Galvanized sheets, 24 g.....	22 0 to 22 10	87.56 to 89.55
Black sheets .....	19 0 to 20 0	75.62 to 79.60
Tin plate base box.....	1 7 to 1 9	5.37 to 5.77
Steel hoops .....	17 10 to 20 0	69.65 to 79.60

\*Export price.

## LARGE AFRICAN INQUIRIES

### Bidding Open on Electrification of Railroad— Drill Steel Inquiry Totals 420 Tons

NEW YORK, May 10.—A number of the large export contracts now pending, or recently placed, are from government sources. One of the largest contracts that has recently appeared calls for the material and erection of the overhead electrification on a South African railroad to be constructed from the east coast port of Durban to Pietermaritzburg in Natal. A shorter connecting line is also projected. Twenty-four stations will be built along the line. The contract calls for 290 miles of overhead electrification on the route, which will be double tracked and in some sections four-tracked, of a 3-ft. 6-in. gage. The catenary system of copper and steel wire suspension will be used, with an overhead transmission of 88,000 volts. The present inquiry includes only the poles, towers, overhead wiring and similar apparatus, erected. It will probably go to an American contractor as no builder in England at present is in a position to handle so large an enterprise. Power stations, turbines, rails and rolling stock will be purchased later. Among the exporters in receipt of the specifications on this project is the Wontham, Bates & Goode Trading Co., 251 Fourth Avenue, New York.

Another large inquiry in the market from South Africa is for 420 tons of hollow round drill steel for making rock drills for a company in Durban, South Africa. The only bidders on this inquiry have been British and American. The American bidders have met the British price and have been offered the order provided they go lower. The current price on this steel is about 15c. per lb.

#### Japan Places Rail Tonnage

An order for rails for the Japanese government railroads has been awarded to Takata & Co., 50 Church Street, New York. It totals about 5400 tons of 75-lb. rails and splice bars and about 500 tons of 60-lb. rails. The Anzan Steel Co., Harbin, Manchuria, recently organized, is controlled by the South Manchurian railroad with offices at 111 Broadway, New York.

According to reports from Japan a combination of the six largest private owned iron and steel companies is proposed by the financial and economic investigation committee of the Japanese Imperial Government. It is suggested by the committee that this combination should receive government aid. The combined production of these plants would about equal the output of the Wakamatsu State Steel Works, which in combination with them would produce about 90 per cent of the country's steel. The Daido Electric Power Co., a combination of three large power companies in Osaka, Japan, will float a 7½ per cent loan of 15,000,000 yen (\$7,275,000) for the construction of a new power house on the Kiso river and the laying of transmission lines to Osaka.

#### Sheets Show Stiffness in Japan

Prices in Japan are still at a low level with the exception of sheets, which continue to show considerable stiffness compared with the rest of the iron and steel market. Japanese buyers of sheets generally are seeking lower than prevailing prices. As an example of

#### American and British Steel Sheets in Japan

It appears that some of the British steel sheets sent to Japan have proved unsatisfactory, so much so that American sheets command a higher price. The following comment from the *Metal Bulletin*, London, states the case:

For a year and more, there has been a crop of complaints from Japan, regarding the quality of British steel sheets reaching there, and disputes between buyers and sellers have been frequent. While this is not unusual in times of heavily falling prices, there really appears this

the low quotations expected by Japanese consumers, a Japanese exporter recently offered an American company an order for several hundred tons of black sheets ranging from Nos. 22 to 30 gage, provided the price was 3.60c. per lb., base, Pittsburgh. One exporter in New York has recently been using London quotations on material for export, the prices quoted evidently being based on Continental iron and steel. Besides the recent contract for 42 locomotives, placed in this country by the Chinese Government, another smaller inquiry from a syndicate owned railroad calls for several locomotives of a large type.

The lower freights from European ports are forcing many exporters to deal in foreign material to meet competition. One American exporter to Japan recently bid on German wire at 2c. per lb., Antwerp, the freight rate from that port being \$13.40 against an American freight of \$18 per ton.

#### German Ore Offered in United States

There is some offering of German iron ore to exporters and other prospective buyers in the United States. A representative of a large German interest has been obtaining estimates on briquetting machines to be used for briquetting a high grade of iron ore. A New York exporter has received an offer from Germany of several thousand tons of low phosphorus, high sulphur iron ore in several lots containing from 42 to 56 per cent iron, at \$2 per ton, f.o.b. Antwerp. The high freight rate, however, added to present rail rates prevents any competition with domestic ores. An exporter recently returned from Europe believes that the greatest future competition in foreign fields will come from Belgium, Luxemburg and France rather than from Germany, except in special articles involving much labor. Belgian foundry iron is now obtainable, c.i.f. New York, at \$28 per ton, which is not competitive.

#### Canceled Material at Port of New York

Numerous large lots of material held at the port of New York, which were either canceled by foreign buyers or held on their account, are being offered to warehouses and exporters. One offer of reinforcing bars in good condition, totaled between 60 and 70 tons at 1.60c. per lb. and a fair sized tonnage of angles, 4 x 4 x ½ in. is also offered at 1.60c. per lb. About 100 tons of steel plates of various specifications, slightly weathered, has been offered by a steel company at 1.60c. per lb. All this material is at the port of New York.

H. M. Saumenig, formerly European representative of the International Steel Co., now liquidating, and managing director of the company's London subsidiary, recently returned to the United States. He believes that the United States will continue to find a market in England for certain steel commodities such as semi-finished products, as has been the case in the past. England's finishing capacity is still in excess of her furnace output, and this condition will probably continue.

Canadian trade with the United States has increased during the past 12 months by \$133,000,000, according to figures compiled by the Canadian Government. The total trade with the United States for the year ended March 31, 1921, was \$1,399,000,000, which represents more than half of Canada's world trade. Canadian imports were \$857,000,000. Iron and steel and manufactures of iron and steel increased by \$59,000,000.

time to be solid ground for complaint, for it is not only native but also British houses in Japan who voice their dissatisfaction. Actually in the local markets in the Far East American steel sheets command a premium over British of from 10 to 15 per cent which shows pretty clearly what Japanese buyers think now of our material. It is possible that some of the British sheets of which complaint is made were produced from shell steel scrap. This would fully account for the trouble but if so the use of this material has proved a penny-wise-pound-foolish policy, for it has created a serious prejudice in the minds of buyers and unless prompt steps are taken to improve the quality of our product, another market will be lost to us.



## DECREASED PRODUCTION

### Mills in Mahoning Valley Reflect Slow Demand —Not Adding to Stocks

YOUNGSTOWN, OHIO, May 10.—Indications point to a slowing up in the buying movement which accelerated iron and steel plant schedules the past month. With the working off of business taken at concession prices, the mills are showing a tendency to lag. Sheet mill schedules, for instance, are at the rate of 38 per cent this week, as compared with 50 per cent the week before. Sales of basic pig iron have been made by Valley steelworks interests at \$22, which is 50c. per ton below the previous low quotation. Steel interests report that more critical buying is one of the features of the current market and that customers insist on quality as well as low prices. Demand for sheets and strip steel has passed the crest temporarily, it appears.

District makers who supply automobile builders with a large part of their steel requirements state that motor car manufacturers are not allowing themselves to become stocked with material. Producers of full finished sheets say that comparatively little tonnage has been awarded for June delivery, indicating the close allowances on which the automobile industry is working.

Steel buying is of a hand-to-mouth character in other directions for the most part. Consumers are apparently convinced that there may be still lower prices arising from possible wage and freight reductions and are governing their commitments accordingly. It is predicted in some quarters that a reduction in freight rates may materialize before August 1. Manufacturers believe that the liquidation of high prices in all directions is rapidly moving to a conclusion.

Wage revision by the leading interest is likely to speed trade normalcy, is the opinion of independents.

This week 38 of 66 open-hearth furnaces are melting and one of three Bessemer plants is making steel. Production is on a basis of approximately 35 per cent. Thirty-nine of the 105 sheet mills in the Valley are under power. The loss in production in this branch of the industry is due to the suspension of the sheet mill units of the Youngstown Sheet & Tube Co. and a decline in such production by the Brier Hill Steel Co. The Newton Steel Co. continues to operate its 10 mills, while the sheet mill plant of the Falcon Steel Co. is suspended for the second week in succession. Fabricating plants are holding their own. The blast furnace schedule is unchanged, with six stacks in commission in the Valley.

In the Shenango Valley, operations are picking up and employment is improving. The Mercer Works of the American Sheet & Tin Plate Co. resumed in full at midnight Sunday. Repairs on Nos. 1 and 5 mills have been completed. Sixteen hot mills are under power at the tin plate works of the same interest at Farrell. The field fence department of the American Steel & Wire Co. at Sharon is running six days a week, while some of the other departments are working only half time. The Sharon plant of the Savage Arms Corporation has started work on an order for 2000 automobile frames.

Independent pipe makers are having difficulty maintaining production at the rate of 40 per cent. Current buying is confined largely to medium-sized standard butt weld. The spurt in demand for line pipe from various oil groups has disappeared. Lack of heavy plate requirements for tank building, reflecting conditions in the oil industry, is retarding plate production.

Uniform prices at the stabilized level continue to apply on sheets and plates. Independents have apparently learned the futility of stimulating business by radical price cutting, though there are occasional reports of concessions.

A district alloy steel maker is getting a fair production in the aggregate due to orders from smaller consuming interests, much of the business emanating from auto and auto accessory manufacturers.

Wire product buying has diminished and current orders show bulk only by reason of their number. Tin plate tonnage coming into this territory has sharply sagged and operations have been cut in two. Inde-

pendent strip mills are showing signs of slowing up, in line with other finished products. The strip market is firm at 2.75c. for hot and 5.50c. base for cold-rolled.

Merchant steel bars are in light demand, virtually all of the business coming from the automobile industry. Recent Valley bookings aggregated 900 tons.

In the semi-finished market, the principal activity is shown by open-hearth sheet bars, due to the demand from non-integrated producers of sheets. Quotations on bars, slabs and billets are unchanged at the stabilized prices.

## Testing Materials Meeting

The tentative program of the annual meeting of the American Society for Testing Materials to be held at the New Monterey Hotel, Asbury Park, N. J., June 20 to 24, puts steel and wrought iron in the session of Friday morning, June 24, and the session on cast iron, corrosion and non-ferrous metals on Friday evening. The period heretofore taken by steel subjects, Wednesday, is now to be given to cement and concrete and road materials and concrete aggregates. The presidential address will be made as usual at the Tuesday evening session, and following this will be offered the report of the executive committee.

Besides the various committee reports, the following papers are announced for the Friday meetings:

Impact Tests on Steel Castings, by F. C. Langenberg;

Tests of Steel at High Temperatures, by R. S. MacPherran, chemist Allis-Chalmers Mfg. Co., Milwaukee; A Test for the Shock Stress Capacity of Hardened Steel, by C. E. Margerum, metallurgist United States Naval Ordnance Plant, South Charleston, W. Va.;

Some Failures on Cast Iron Wheels, by H. J. Force, chemist and engineer of tests, Delaware, Lackawanna & Western Railroad Co., Scranton, Pa.;

Methods of Casting Manganese Bronze Test Bars as a Check on Melts of Small Castings, by E. H. Dix, Jr., chief, metallurgical branch, Air Service, McCook Field, Dayton, Ohio;

Some Mechanical Properties of Monel Metal, by P. D. Merica, physical metallurgist International Nickel Co., Bayonne, N. J.

## Officers Nominated

C. D. Young, who for some years was chairman of committee A-1 on steel and is now vice-president of the society, has been nominated for president for the next society year. Guiliam Aertsen, Midvale Steel & Ordnance Co., Nicetown Works, Philadelphia, has been nominated for vice-president. For members of the executive committee, the nominations are as follows: Florus R. Baxter, chief of testing laboratory, Vacuum Oil Co., Rochester, N. Y.; E. D. Boyer, cement expert, Atlas Portland Cement Co., New York; F. M. Farmer, chief engineer Electrical Testing Laboratories, New York, and W. H. Fulweiler, chief chemist, United Gas Improvement Co., Philadelphia.

## Shipping Board Sells Plates

WASHINGTON, May 9.—The Hymans-Michaels Co., Chicago, was the highest and successful bidder for 809 tons of United States Shipping Board fabricated plates, at the Neville Island, Pa., plant of the Pittsburgh-DeMoines Steel Co., the price being \$11.337 f.o.b. cars per net ton. The bids were opened last week and also included 1826 tons at the plant of the Toledo Bridge & Crane Co., Toledo, Ohio, made up of 714 tons of fabricated plates, approximately 600 tons of shapes, and 400 tons of fabricated plates. The highest bidder for this lot was the I. Gerson & Sons Co., Toledo, its figures being \$8.515 per net ton.

The board is gradually disposing of small lots of its surplus steel, consisting of approximately 250,000 tons of plain and fabricated material. It still has negotiations under way for the disposal of the bulk of the tonnage to a foreign company. It is its aim to sell the small lots at interior points to domestic dealers and consumers. The prices offered confirmed the previously existing belief that the material would have to be disposed of as scrap.

## LOWER RAIL RATES

### Carrying Charge on Tin Plate Reduced and Other Revisions Are Hoped For

WASHINGTON, May 10.—Transcontinental rail rates on tin plate to the Pacific Coast from all mills in the Middle West and back to and including the Atlantic seaboard have been reduced to a flat rate of \$1.20 per 100 pounds. The only exception where this rate will not apply is in the so called group J or the Colorado territory, with a rate of \$1.175, but inasmuch as no tin plate is made in that section this latter is only a paper rate. The reductions will go into effect not later than May 20 and probably three or four days before that date. The present rate from New York and other points in group A, which includes the Atlantic seaboard, is \$1.835, the reduction being 63.5c. The rate west from the Atlantic seaboard to the Missouri River, which with the Atlantic seaboard, includes all of the tin plate mills, now is \$1.425, this reduction being 22.5c.

The reduction was allowed at the request of the transcontinental railroads which naturally had the support of producers. In granting permission the Interstate Commerce Commission recognized the contention of the railroads that a reduction was necessary in order to meet water competition through the Panama Canal, which is increasing to such an extent that it has compelled the railroads to make other reductions previously.

### Freight Rates Increase Cost of Farm Implements

The most essential thing to the return of business prosperity is a readjustment of freight rates downward, said F. R. Todd, Deere & Co., Moline, Ill., in addressing a joint meeting of three departments of the National Implement & Vehicle Association, in Chicago, on April 21. The increased cost of transportation to the farmer in the purchase of a gang plow, he asserted, amounted to \$10.27, whereas the increased freight on 232½ bu. of corn required for the purchase of gang plow was \$17.73, making a total of \$28 increased freight which the farmer is forced to bear. Mr. Todd arrived at his figures in the following manner:

"Statistics show that it takes six tons of material to make a ton of steel. We have found out from careful analysis that it takes three tons of the various materials, as we receive them in our manufacture, to make a ton of implements. With these facts in mind, I want to picture to you the increased transportation cost at the present time, over 1914, to a farmer located on the Missouri River, in the purchase of a gang plow, where this plow is paid for in the returns from a number of bushels of corn, f.o.b. Chicago, sold at the present price, to cover the cost of the plow.

"The cost of transportation of the material required to make a ton of steel in 1914 was \$7.19; in 1921, \$15.17; an increase of \$7.98, or 111 per cent. The cost of transporting a ton of steel from Pittsburgh to Moline in 1914 was \$4.60; to-day it is \$9.80, an increase of \$5.20, or 113 per cent. The cost of transporting a ton of implements from Moline to the Missouri River was \$4.50 in 1914, and \$8.45 to-day—an increase of \$3.95, or 90 per cent. The cost of transporting a bushel of corn from the Missouri River to Chicago was 8¼c. in 1914; it is 15¾c. to-day—an increase of 92 per cent.

"A gang plow weighs 746 lb. and sells to the farmer at the Missouri River for \$139.50. At the present price of corn (60c. a bushel at Chicago) it requires 232½ bushels of that commodity to pay for a gang plow. Taking the above figures as a basis, we find the following increased cost of transportation to the farmer in the purchase of a gang plow:

Increase on raw material.....	\$2.98
Increase on steel and material.....	5.82
Increase on finished plow.....	1.47
	<hr/>
Increased freight on 232½ bu. of corn.....	\$10.27
	17.73
	<hr/>
Total .....	\$28.00

In concluding his remarks, Mr. Todd stated that the

That there may be a general reduction of rates on iron and steel products to the Pacific Coast is looked upon as being a probability, the lowering of the tin plate rates being accepted as a forerunner to such action. In asking to lower the tin plate rates, the railroads sought permission to do so upon ten days' notice, and this application was granted.

### New Haven Case Significant

WASHINGTON, May 10.—Significance of possibly far-reaching character is attached to the authorization granted last week by the Interstate Commerce Commission to the New York, New Haven & Hartford Railroad to reduce its rates on building materials upon five days' notice. It is expected that the carrier will have its new tariffs, which will decrease the rates about 20c. per ton, in operation by the fifteenth of the current month. The fact that the New Haven requested that it be allowed to reduce its rates and obtained favorable action from the commission has given rise to the belief that other carriers will adopt a similar course with the result that there will be a general reduction of rates on building materials, including not only sand, gravel and crushed rock, the commodities directly affected by the New Haven's reductions, but other building lines as well. Moreover, there is a prevailing belief that this is an entering wedge toward a wide leveling of railroad rates to a parity that will be in line with readjustments being made and attempted by manufacturing, wholesale and retail interests.

condition of the American farmer is fundamentally sound. The average debt of the farmer to the bank is \$618. Farmers bought \$1,500,000,000 worth of Liberty bonds and they still own 61 per cent of the original purchase. In spite of all of the difficulties of the past year, only five per cent of farms of the country have changed hands.

### Standardization of Styles and Sizes Decreases Cost of Implements

An annual saving to the farmers of \$10,000,000 has been effected through the elimination of unnecessary styles, varieties and sizes of farm implements and vehicles, asserted F. R. Todd, Deere & Co., Moline, Ill., in addressing a meeting of the plow and tillage department of the National Implement and Vehicle Association, in the Auditorium Hotel, Chicago, April 21. During the war period, he stated, standardization of equipment was influential to a large extent in keeping down the increase in the price level of implements to 78 per cent, at a time when all other lines were advancing by leaps and bounds. G. W. Crampton, Deere & Mansur Works, Moline, Ill., and chairman of the standardization committee, exhibited charts showing the benefits from the manufacturing standpoint which accompanied the elimination of needless lines. One direct result of standardization, he said, was the ability to produce 20 per cent more during the rush season of 1920 than would have been possible under the conditions prevailing prior to the eliminations made in 1918 and following years.

A recommendation of the meeting was that the standardization committee devote further effort toward the standardization of articles in common usage to the end that the industry may benefit and costs in general be reduced. The recommendation referred particularly to such things as sections, levels, seats, seat frames, etc.

### Farmers Repairing Old Implements

Farmers are repairing their present machinery rather than purchasing new equipment. For the first three months of this year the sales of the repair department for one line of implements manufactured by the International Harvester Co. exceeded the department's entire sales for 1920.



## PITTSBURGH PLUS CASE

### Western Association Continues Active—Answer of Steel Corporation Awaited with Interest

WASHINGTON, May 10.—The answer of the United States Steel Corporation to the complaint of the Federal Trade Commission in the so-called Pittsburgh-plus case is being awaited with considerable interest. It is evident that the commission does not give credence to apparently irresponsible reports that the Steel Corporation will not make a reply within 30 days from the time of issuance of the complaint, but on the contrary, fully expects that it will be made. Not only is this action taken as a matter of course, but it is believed that independent steel producers will ask to be allowed to intervene and that the case will be carried to a conclusion and go to the Supreme Court of the United States in the event a "cease and desist order" is issued by the commission.

In the meantime it is preparing for the hearings, which will be held at various steel producing points, including Pittsburgh, Chicago, Duluth, Minn., and Birmingham, Ala., with indications that the proceedings will be of long duration. It is readily recognized as being the most important case that has ever come before the commission and that it will not alone affect the steel industry but also other basic industries which maintain so-called basing points. But, despite the expected extent of the proceedings and the great number of angles, the belief prevails among steel makers that the condition is governed by the law of supply and demand. In other words, even if the Pittsburgh base per se were theoretically wiped out, in a keen market where the demand exceeds the supply, producers would be able to obtain prices based on the Pittsburgh base merely by adding the freight from Pittsburgh but invoicing shipments at flat price invoices, a practice that always has been common on a rising or active market, just as the practice of absorbing either part or all of the differential is not unusual in times of a dull market.

### Predicts Much Criticism

Not the least interesting development in the case is the increased activities of consumers in protesting against the Pittsburgh-plus plan. While previously efforts in this direction in appealing to legislative bodies have been largely confined to State assemblies, they now have been carried to Congress in Washington. The Western Association of Rolled Steel Consumers, Chicago, which instituted the proceedings against the steel makers, has issued a vigorous circular, signed by Secretary W. E. McCollum of the association, and addressed to members of the National Association of Purchasing Agents. After commending the Federal Trade Commission for issuing the complaint, and mentioning the part the association had to do with it, the circular says that "We may now expect the United States Steel Corporation and the other mills to be busily trying to counteract the effect of this magnificent victory. With its trained publicity forces and unequalled facilities for gathering information, there is little doubt that the Steel Corporation is preparing for it." It also predicts that "batteries of criticism are to be trained on the commission from many sources, all, however, inspired by the steel mills. There have already been some advance symptoms of this found in several editorials criticising the commission in general terms recently, and these will continue, without doubt and with increased virulence."

The circular then urges those interested in abolition of the "Pittsburgh-plus" to support "the commission with all the energy at their command, and do it at once."

### Urged to Write to President

The association asks those "who will benefit by the abolition of 'Pittsburgh-plus' to write to President Harding and members of Congress, sending the letters promptly." While the association is not "prescribing a form for these letters," it suggests that "they recite the benefit to yourselves and the country generally involved in the commission's ruling" and "advocate granting to the commission the unquestioned power to

investigate costs in iron, coal and steel. We need authoritative figures from an official source to prove to the public—what we know—that steel is made in Chicago as cheap or cheaper than in Pittsburgh."

### Valley Association Opposes "Pittsburgh Plus"

A resolution adopted at the third annual convention of the Mississippi Valley Association held in New Orleans last week, declares against the Pittsburgh base for prices on rolled steel and indorses the action of the Federal Trade Commission in issuing a complaint and ordering a hearing on the subject. The resolution was introduced following an address by Frank Emerich, of Chicago, representing the Western Association of Rolled Steel Consumers.

### Very Low Steel Output for April

The steel ingot statistics of the American Iron and Steel Institute for April show that thirty companies, which in 1920 produced 84.21 per cent of the total, had an output last month of 1,213,958 gross tons, as compared with 1,570,978 tons in March. The falling off from March was 357,020 tons, or about 22.4 per cent. Estimating the production of the other companies on the basis of those reporting, the total production of ingots in March was 1,441,537 tons, or 55,443 tons per operating day, counting 26 working days to the month, against an estimated total of 1,845,604 tons, or 68,355 tons per operating day in March. This is a decline of 404,067 tons, or 12,912 tons per day. In the table below the output of Bessemer and open-hearth works is separated and the data for 1920 by months are included:

Monthly Production of Steel Ingots by 30 Companies Which Produced About 84.21 Per Cent of Total in 1920—Gross Tons

	Open-Hearth	Bessemer	All Other	Total
January, 1920.....	2,242,758	714,657	10,687	2,968,102
February .....	2,152,106	700,151	12,867	2,865,124
March .....	2,487,245	795,164	16,640	3,299,049
April .....	2,056,335	568,952	13,017	2,638,305
May .....	2,251,544	615,932	15,688	2,883,164
June .....	2,287,273	675,954	17,463	2,980,690
July .....	2,135,633	653,888	13,297	2,802,818
August .....	2,299,645	695,003	5,784	3,000,432
September .....	2,300,417	693,586	5,548	2,999,551
October .....	2,335,863	676,634	3,485	3,015,982
November .....	1,961,861	673,215	3,594	2,638,670
December .....	1,687,162	649,617	3,586	2,340,365
Total, 1920.....	26,197,843	8,112,753	121,656	34,432,252
January, 1921.....	1,591,281	608,276	3,629	2,203,186
February .....	1,295,863	450,818	2,796	1,749,477
March .....	1,175,591	392,983	2,404	1,570,978
April .....	1,000,053	211,755	2,150	1,213,958

The April ingot production was at the yearly rate of 17,242,773 tons, counting 311 operating days to a year. This compares with a rate in March of 21,258,405 tons. The decline of 404,067 tons in the estimated ingot output of all companies in April from that of March compares with a decline of 402,481 tons in the April pig iron output from that of March.

### Wheeling Steel Corporation Election

The subsidiary companies of the Wheeling Steel Corporation recently held their annual meetings to elect directors for the ensuing year. The personnel of the three companies now is as follows:

LaBelle Iron Works—President, D. A. Burt; vice-presidents, H. D. Westfall, G. B. Le Van; secretary-treasurer, H. P. Beswick; auditor, J. L. Fisher; directors, Alex. Glass, Isaac M. Scott, A. H. Woodward, A. C. Whitaker, C. R. Hubbard, J. J. Holloway, W. H. Abbott, H. D. Westfall, Andrew Glass, E. C. Ewing, G. B. Le Van and D. A. Burt.

Wheeling Steel & Iron Co.—Chairman, I. M. Scott; president, John Duncan; vice-president and treasurer, C. J. Hunter; secretary, H. T. Swift; assistant treasurer, W. H. Higgins; auditor, W. L. Kettler; directors, Alex. Glass, Isaac M. Scott, A. H. Woodward, A. C. Whitaker, C. R. Hubbard, J. J. Holloway, W. H. Abbott, John Duncan, Andrew Glass, E. C. Ewing, C. J. Hunter and D. A. Burt.

Whitaker-Glessner Co.—President, Andrew Glass; vice-presidents, N. P. Whitaker, A. J. McFarland, W. H. Abbott, A. C. Whitaker; secretary, N. E. Whitaker; treasurer, W. H. Manning; assistant treasurer, George P. Whitaker; auditor, J. F. Bycott; directors, Alex. Glass, Isaac M. Scott, J. J. Holloway, E. C. Ewing, A. H. Woodward, A. C. Whitaker, C. R. Hubbard, D. A. Burt, Andrew Glass, W. H. Abbott, N. P. Whitaker, A. J. McFarland, W. W. Holloway, W. J. Cook, H. J. Humphrey, A. C. Moffatt.

# Prices Finished Iron and Steel, f.o.b. Pittsburgh

## Freight Rates

Freight rates from Pittsburgh on finished iron and steel products, in carload lots, to points named, per 100 lb., are as follows:

Philadelphia .....	\$0.35	St. Paul .....	\$0.665
Baltimore .....	0.335	Omaha .....	0.815
New York .....	0.38	Omaha (pipe) .....	0.77
Boston .....	0.415	Denver .....	1.35
Buffalo .....	0.295	Denver (wire products) .....	1.415
Cleveland .....	0.24	Pacific Coast .....	1.665
Cincinnati .....	0.325	Pacific Coast, ship plates .....	1.335
Indianapolis .....	0.345	Birmingham .....	0.765
Chicago .....	0.38	Jacksonville, all rail .....	0.555
St. Louis .....	0.475	Jacksonville, rail and water .....	0.46
Kansas City .....	0.815	New Orleans .....	0.515
Kansas City (pipe) ..	0.77		

The minimum carload to most of the foregoing points is 36,000 lb. To Denver the minimum loading is 40,000 lb., while to the Pacific Coast on all iron and steel products, except structural material, the minimum is 80,000 lb. On the latter item the rate applies to a minimum of 50,000 lb., and there is an extra charge of 9c. per 100 lb. on carloads of a minimum of 40,000 lb. On shipments of wrought iron and steel pipe to Kansas City, St. Paul, Omaha and Denver, the minimum carload is 46,000 lb. On iron and steel items not noted above the rates vary somewhat and are given in detail in the regular railroad tariffs.

Rates from Atlantic Coast ports (i.e., New York, Philadelphia and Baltimore) to Pacific Coast ports of call on most steamship lines, via the Panama Canal, are as follows: Pig iron, 55c.; ship plates, 70c.; ingot and muck bars, structural steel, common wire products, including cut or wire nails, spikes and wire hoops, 75c.; sheets and tin plates, 60c. to 75c.; rods, wire rope, cable and strands, \$1; wire fencing, netting and stretcher, \$1; pipe, not over 8 in. in diameter, 85c.; over 8 in. in diameter, 2½c. per in. or fraction thereof additional. All prices per 100 lb. in carload lots, minimum 40,000 lb.

## Structural Material

I-beams, 3 to 15 in.; channels, 3 to 15 in.; angles, 3 to 6 in., on one or both legs, ¾ in. thick and over, and zebs, structural sizes, 2.20c.

## Wire Products

Wire nails, \$3 to \$3.25 base per keg; galvanized, 1 in. and longer, including large-head barbed roofing nails, taking an advance over this price of \$1.50 and shorter than 1 in., \$2; bright Bessemer and basic wire, \$3.00 per 100 lb.; annealed fence wire, Nos. 6 to 9, \$3.00; galvanized wire, \$3.70; galvanized barbed wire, \$4.10; galvanized fence staples, \$4.10; painted barbed wire, \$3.40; polished fence staples, \$3.40; cement-coated nails, per count keg, \$2.85; these prices being subject to the usual advances for the smaller trade, all f.o.b. Pittsburgh, freight added to point of delivery, terms 60 days, net, less 2 per cent off for cash in 10 days. Discounts on woven-wire fencing are 60½ to 63 per cent off list for carload lots, 59½ to 62 per cent for 1000-rod lots, and 58½ to 61 per cent for small lots, f.o.b. Pittsburgh.

## Bolts, Nuts and Rivets

Large structural and ship rivets .....	\$3.40 to \$3.50
Large boiler rivets .....	3.50 to 3.60
Small rivets .....	60, 10 and 10 per cent off list
Small machine bolts, rolled threads, 60, 10 and 10 per cent off list	
Same sizes in cut threads .....	60 and 10 per cent off list
Longer and larger sizes of machine bolts ..	60 per cent off list
Carriage bolts, ¾-in. x 6-in.:	
Smaller and shorter, rolled threads ..	60 and 5 per cent off list
Cut threads .....	50, 10 and 5 per cent off list
Longer and larger sizes .....	50 and 10 per cent off list
Lag bolts .....	65 per cent off list
Plow bolts Nos. 1, 2 and 3 head ..	50, 10 and 5 per cent off list
Other style heads .....	20 per cent extra
Machine bolts, c.p.c. and t. nuts ¾-in. x 4-in.:	
Smaller and shorter .....	50, 10 and 5 per cent off list
Longer and larger sizes .....	50 and 5 per cent off list
Hot pressed sq. or hex. blank nuts .....	\$4.00 off list
Hot pressed nuts, tapped .....	\$3.50 off list
C. p. c. and t. sq. or hex. nuts, blank ..	\$4.00 off list
C. p. c. and t. sq. or hex. nuts, tapped ..	\$3.50 off list
Semi-finished hex. nuts:	
¾ to 9/16 in. inclusive U. S. S. ..	80 and 10 per cent off list
Same sizes S. A. E. ..	80, 10 and 10 per cent off list
¾ to 1 in. inclusive U. S. S. and S. A. E.:	
70, 10 and 10 per cent off list	
Stove bolts in packages .....	80 and 10 per cent off list
Stove bolts in bulk .....	80, 10 and 2½ per cent off list
Tire bolts .....	65, 10 and 10 per cent off list
Track bolts .....	4.35c. base

## Square and Hex. Head Cap Screws

¾ in. and under .....	70 per cent off list
9/16 in. to ¾ in. ....	70 per cent off list

## Set Screws

¾ in. and under .....	70 and 5 to 70 and 10 per cent off list
9/16 in. to ¾ in. ....	70 per cent off list

## Rivets

Rivets, 1c. per lb. extra for less than 200 kegs. Rivets in 100-lb. kegs, 25c. extra to buyers not under contract; small and miscellaneous lots less than two tons, 25c. extra; less than 100 lb. of a size, or broken kegs, 50c. extra. All prices carry standard extras f.o.b. Pittsburgh.

## Wire Rods

No. 5 common basic or Bessemer rods to domestic consumers, \$48; chain rods, \$48; screw stock rods, \$53; rivet and bolt rods and other rods of that character, \$48; high carbon rods, \$58 to \$73, depending on carbons.

## Railroad Spikes and Track Bolts

Railroad spikes, 9/16-in. and larger, \$3.25 to \$3.40 base per 100 lb. in lots of 200 kegs of 200 lb. each or more; spikes, ½-in., ¾-in., and 7/16-in., \$3.40 base; 5/16-in., \$3.40 base. Boat and barge spikes, \$3.40 to \$3.65 base per 100 lb. in carload lots of 200 kegs or more, f.o.b. Pittsburgh. Track bolts, \$4.35 to \$4.50 base per keg of 200 lb. Tie plates, \$2.50 per 100 lb.; angle bars, \$2.75 per 100 lb.

## Terne Plates

Prices of terne plates are as follows: 8-lb. coating, 200 lb., \$12.30 per package; 8-lb. coating, I. C., \$12.60; 12-lb. coating, I. C., \$14.30; 15-lb. coating, I. C., \$15.30; 20-lb. coating, I. C., \$16.55; 25-lb. coating, I. C., \$17.80; 30-lb. coating, I. C., \$18.80; 35-lb. coating, I. C., \$19.80; 40-lb. coating, I. C., \$20.80 per package, all f.o.b. Pittsburgh, freight added to point of delivery.

## Iron and Steel Bars

Steel bars at 2.10c. from mill. Refined bar iron, 2.75c.

## Welded Pipe

The following discounts are to jobbers for carload lots on the Pittsburgh basing card:

Steel			Iron		
Inches	Black	Galv.	Inches	Black	Galv.
1/8 to 1/4 .....	50 1/2	24	1/4 to 3/8 .....	2 1/2	+28 1/2
1/4 to 1/2 .....	52 1/2	26	3/8 to 1/2 .....	27 1/2	9 1/2
1/2 to 3/4 .....	56 1/2	42	1/2 to 1 .....	33 1/2	18 1/2
3/4 to 1 .....	60 1/2	48	1 to 1 1/2 .....	35 1/2	20 1/2
1 to 3 .....	62 1/2	50			
Lap Weld			Butt Weld, extra strong, plain ends		
2 .....	54 1/2	42	1/4 to 3/8 .....	+10 1/2	+43 1/2
2 1/2 to 6 .....	58 1/2	46	3/8 to 1/2 .....	26 1/2	14 1/2
7 to 12 .....	54 1/2	41	1/2 to 3/4 .....	33 1/2	19 1/2
13 to 14 .....	45	..	3/4 to 1 .....	35 1/2	21 1/2
15 .....	42 1/2	..			

Butt Weld			Lap Weld, extra strong, plain ends		
1/8 to 1/4 .....	46 1/2	29	2 .....	31 1/2	18 1/2
1/4 to 1/2 .....	48 1/2	31	2 1/2 to 4 .....	34 1/2	22 1/2
1/2 to 3/4 .....	53 1/2	42	4 1/2 to 6 .....	33 1/2	21 1/2
3/4 to 1 .....	58 1/2	47	7 to 8 .....	24 1/2	12 1/2
1 to 1 1/2 .....	60 1/2	49	9 to 12 .....	19 1/2	7 1/2
2 to 3 .....	61 1/2	50			

To the large jobbing trade an additional 1, 5 and 2½ per cent is allowed over the above discounts, which are subject to the usual variations in weight of 5 per cent.

## Boiler Tubes

The following are the discounts for carload lots f.o.b. Pittsburgh:

Lap Welded Steel		Charcoal Iron	
1 1/4 in. ....	19 1/2	1 1/2 in. ....	+10
2 to 2 1/4 in. ....	30	1 3/4 in. ....	List
2 1/2 to 3 in. ....	41	2 to 2 1/4 in. ....	-10
3 1/4 to 13 in. ....	47	2 1/2 to 2 3/4 in. ....	-15
		3 to 3 1/4 in. ....	-16
		3 1/2 to 4 1/2 in. ....	-20

## Carload Discounts on Standard Commercial Seamless—Cold Drawn

1 in. ....	56	2 to 2 1/2 in. ....	17 1/2
1 1/4 in. ....	49	2 3/4 and 4 in. ....	20
1 1/2 in. ....	48	4 1/2 to 5 in. ....	7 1/2
1 3/4 in. ....	25		

## Hot Rolled

3 to 4 in. .... 30

These prices do not apply to special specifications for locomotive tubes nor to special specifications for tubes for the Navy Department which will be subject to special negotiations.

## Sheets

Prices for mill shipments on sheets of standard gage in carloads, f.o.b. Pittsburgh, follow:

Blue Annealed		Box Annealed, One Pass Cold Rolled	
Cents per Lb.		Cents per Lb.	
No. 8 and heavier .....	3.00	No. 28 (base) .....	4.00
No. 9 and 10 (base) .....	3.10	No. 29 .....	4.10
		No. 30 .....	4.20
Galvanized Black Sheet Gage		Tin-Mill Black Plate	
Cents per Lb.		Cents per Lb.	
Nos. 17 to 21 .....	3.80	Nos. 25 and 26 .....	4.70
Nos. 22 to 24 .....	3.85	No. 27 .....	4.85
Nos. 25 and 26 .....	3.90	No. 28 (base) .....	4.50
No. 27 .....	3.95	No. 29 .....	5.25
		No. 30 .....	5.50

Galvanized Black Sheet Gage		Tin-Mill Black Plate	
Cents per Lb.		Cents per Lb.	
Nos. 10 and 11 .....	4.00	No. 28 (base) .....	4.00
Nos. 12 to 14 .....	4.10	No. 29 .....	4.05
Nos. 15 and 16 .....	4.25	No. 30 .....	4.05
Nos. 17 to 21 .....	4.40	Nos. 30 1/2 and 31 .....	4.10
Nos. 22 to 24 .....	4.55		



## Non-Ferrous Metals

### The Week's Prices

Cents Per Pound for Early Delivery

May	Copper, New York		Tin	Lead		Zinc	
	Lake	Electro-lytic	New York	New York	St. Louis	New York	St. Louis
4.....	12.75	12.37½	32.12½	4.75	4.75	5.45	4.95
5.....	12.75	12.37½	33.00	4.75	4.75	5.45	4.95
6.....	12.75	12.50	32.75	4.85	4.85	5.45	4.95
7.....	12.75	12.50	...	4.85	4.85	5.45	4.95
9.....	12.75	12.50	32.25	5.00	4.85	5.45	4.95
10.....	12.75	12.50	32.25	5.00	5.00	5.45	4.95

NEW YORK, May 10.

None of the markets is especially active, but the tone of all is generally firm with prices higher in some cases. Foreign demand for copper is good, but domestic demand is light. Buying of tin was active for a few days but has diminished again. The lead market is the strongest of all and prices have advanced. Demand for zinc has become very meager, but quotations are firm.

### New York

**Copper.**—Foreign buyers of copper have been much more prominent recently than domestic. At the end of last week sales to foreign consumers located in as many as six different European and Far Eastern countries amounted to between 4,000,000 and 5,000,000 lb. of electrolytic copper at a price somewhat above that prevailing for domestic consumption. American buyers, while a little more active in inquiry, are still few in making purchases. Electrolytic copper for early delivery is quoted a little higher than a week ago at 12.75c., delivered, or 12.50c., New York. Some sellers have a minimum price of 12.87½c., delivered, and for late June or July some purchases cannot be made at less than 13c., delivered. It appears that metal that was available at 12.62½c., delivered, in recent weeks has been absorbed. Lake copper is quiet but fairly strong at 12.75c., New York, or 13c., delivered, for early delivery.

**Tin.**—The market last week had a moderate burst of activity when there were liberal sales of May-June and July-August shipment from the East. It is stated that sales were confined largely to two importing houses and that consumers bought in good volume, but the bulk was purchased by one dealer. The movement started a week ago Saturday and continued through last Wednesday, at the end of which 32c. was bid for future shipments, with no sellers. Spot positions were comparatively neglected and closely held. At this time there was a sharp advance of over £6 per ton in London, which put a stop to buying on this side. Since then the market has been stagnant. Had the advance referred to been gradual instead of sharp there would have been more buying by consumers, according to opinions in the trade. Spot Straits tin to-day is quoted at 32.25c., New York. The market in London to-day was about £5 higher than a week ago, with spot standard quoted at £175 10s., future standard at £175 15s. and spot Straits at £179 10s. per ton, with the Singapore price yesterday £181 c.i.f. London. Arrivals thus far this month have been 510 tons with 1490 tons reported afloat.

**Lead.**—The feature of the week has been two advances by the leading interest. On May 4 the American Smelting & Refining Co. advanced its price to 4.75c., both New York and St. Louis, and again to 5c. for the same positions. This seller appears to have withdrawn from the market late last week, leaving business largely in the hands of independent producers. Demand has been fairly good and buying has been satisfactory, especially in view of the fact that stocks are not heavy and production is at a low ebb. We quote the market at 5c., New York and St. Louis, for early delivery.

**Zinc.**—There has been scarcely any change and demand from consumers has been exceedingly light. The fact that ore prices have advanced recently has been

one factor in preventing a decline in prime Western zinc which remains steady at 4.95c., St. Louis, or 5.45c., New York, for early delivery. There is no desire on the part of producers to force the market. It is understood that a small lot has been sold at slightly below these quotations but any sizable quantity could not be purchased at any concession.

**Antimony.**—The quotation continues unchanged for wholesale lots for early delivery at 5.25c., duty paid.

**Aluminum.**—Wholesale lots of virgin metal, 98 to 99 per cent pure, are quoted by the leading producer at 28c. f.o.b. plant and foreign metal of the same analysis can be purchased from outside sellers at 23c. to 23.50c., New York.

**Old Metals.**—There was a better feeling in the trade this week although the transactions which did take place were generally small. Dealers' selling prices are nominally as follows:

	Cents Per Lb.
Copper, heavy and crucible.....	12.00
Copper, heavy and wire.....	11.00
Copper, light and bottoms.....	9.50
Heavy machine composition.....	11.75
Brass, heavy.....	8.00
Brass, light.....	6.00
No. 1 red brass or composition turnings.....	9.00
No. 1 yellow rod brass turnings.....	6.00
Lead, heavy.....	4.25
Lead, tea.....	3.25
Zinc.....	3.50

### Chicago

MAY 10.—Another advance by the leading producer, coupled with a moderate demand from dealers, has resulted in a stiffening of the lead market. Some observers are of the opinion, however, that the advance in lead has been too rapid and a reaction is due. Spelter has declined. The demand for this metal has not kept pace with expectations and stocks have been offered which have not been absorbed. The other metals are quiet and unchanged. We quote Lake copper at 13c. in carload lots; tin, 33c.; lead, 4.95c.; spelter, 5c.; antimony, 7.50c. On old metals we quote copper wires, crucible shapes, 8c.; copper clips, 8c.; copper bottoms, 7c.; red brass, 8c.; yellow brass, 5.50c.; lead pipe, 2.75c.; zinc, 2c.; pewter, No. 1, 17c.; tinfoil, 19c.; block tin, 22c., all these being buying prices for less than carload lots.

### St. Louis

MAY 9.—The non-ferrous markets have shown a better tendency with lead in car lots quoted around 4.75c. to 4.85c. and spelter 4.95c. or better. In less than car lots the quotations reported are: Lead, 5.25c.; spelter, 5.50c.; tin, 37c.; copper, 13.75c.; antimony, 7.50c. In the Joplin district ores have been stiffly held at the prices which have been previously reported and there have been some reports of sales at higher prices. The general average of sales for the district has ranged higher, but in the main the top prices have been about as quoted recently. On miscellaneous scrap metals dealers' prices have shown no change from the last figures given, but there is a little more activity in old material. On miscellaneous scrap metals we quote dealers' buying prices as follows: Light brass, 4c.; heavy yellow brass, 5c.; heavy red brass, 8c.; heavy copper and copper wire, 9c.; light copper, 7.50c.; zinc, 3c.; lead, 3.50c.; pewter, 15c.; tinfoil, 18c.; tea lead, 2c.; aluminum, 9c.

### Contract for Heating Furnaces

The Wheeling Steel Corporation has just placed a contract with Tate-Jones & Co., Inc., Pittsburgh, for sheet and pair heating furnaces for a 6-mill unit for its Wheeling plant. Tate-Jones & Co., Inc., will furnish its standard sheet heating furnaces and its patented Costello continuous pair furnaces, similar in design and construction to the ones which have been in operation for about a year at the plant of Superior Sheet Steel Co., Canton, Ohio. Work will start immediately on these furnaces as the Wheeling Steel Corporation is excavating for the foundation and is pushing the work on the mill as rapidly as possible.

## PERSONAL

W. H. Hegmann, general superintendent Atlas Crucible Steel Co., Dunkirk, N. Y., since 1915, has resigned. Prior to his connection with the Atlas company he held responsible positions in the tool steel industry of the Pittsburgh district.

A. J. Gardner general manager Coates Clipper Mfg. Co., Worcester, Mass., has resigned and is succeeded by J. W. Watson, who has been with the concern for 25 years, for several years a director.

Charles R. Pollard has resigned from the trade research division of the Goodyear Tire & Rubber Co., Akron, Ohio, to resume the office of secretary of the Alexander Milburn Co., Baltimore, welding and cutting apparatus. Mr. Pollard was with the Milburn company in various capacities for ten years prior to joining the Goodyear company in 1919, and will take care of the territorial development for the Milburn company's products.

Augustus N. Kelley, for the past seven years superintendent of the Modern Foundry Co., Oakley, Cincinnati, has resigned and will engage in the foundry engineering field. For four years he was with the American Blower Co., Detroit, two years with the Chapman Valve Co., Springfield, Mass. Previous to this he was for 18 years with the Blake-Knowles Pump Works, East Cambridge, Mass.

Frederick H. Payne, president Greenfield Tap & Die Corporation, Greenfield, Mass., has been made president of the S. A. Smith Mfg. Co., Brattleboro, Vt., toys, to succeed the late Arthur B. Clapp.

Homer J. Forsythe, manager of the construction division of the engineering department of E. I. du Pont de Nemours & Co., Inc., has been transferred to the position of assistant general manager of the Hyatt Roller Bearing Co., Newark, N. J., a subsidiary of the General Motors Corporation. Mr. Forsythe was selected for this position because of his wide experience in machine shop work.

A. L. Wurster, 1008 Drexel Building, Philadelphia, has been appointed to represent the Heppenstall Forge & Knife Co., Pittsburgh, for the sale of die blocks, forgings and shear knives, and N. & G. Taylor Co., Philadelphia, for forging steel, covering an eastern section running from western New York to central and eastern Pennsylvania, southern New Jersey, Delaware and Virginia.

C. Earle Smith, National Twist Drill & Tool Co., Detroit, was recently elected a member of the board of directors and is now secretary and sales manager.

John J. Swan has become associated with the Engineering Business Exchange, New York, and has removed there from Indianapolis, resigning his position with the Prest-O-Lite Co., which he had held for two years. Mr. Swan was graduated from Cornell University in 1897. He was for a time one of the editors of *Engineering News* and later held important engineering and executive positions with the Ingersoll-Rand Co., the Longmead Iron Co., the Chicago Pneumatic Tool Co., Keller Mfg. Co. and the American Arms Corporation. During the war Mr. Swan was a member of the committee in the Adjutant-General's office which had charge of the classification of personnel of the Army. He was commissioned a lieutenant-colonel.

J. O. Eaton presented his resignation as one of the receivers of the Standard Parts Co., Cleveland, to Judge D. C. Westenhaver in the United States district court to take effect April 30. In view of Mr. Eaton's resignation he will be in a position to co-operate actively with the creditors' committee in the work of bringing about a reorganization of the Standard Parts properties. Frank A. Scott continues as sole receiver.

Robert D. Seidel was elected president of the R. B. Seidel, Inc., Philadelphia Black Lead Crucible Works. He succeeds his brother, the late Henry C. Seidel, who

died Feb. 12. The Crucible works has been in continuous operation for 55 years. The founder, R. B. Seidel, father of Henry and Robert Seidel, died in 1892.

F. Mulford Ware has resigned as secretary to the auditor of the Midvale Steel & Ordnance Co., Widener Building, Philadelphia, after five years' service, to become office manager for one of the agencies of the Burroughs Adding Machine Co. in New York.

Prof. Dwight Porter, Massachusetts Institute of Technology, Cambridge, Mass., head of the hydraulics department, has resigned and will leave the institute Oct. 1, retiring to private life. Professor Porter has served the institution about 38 years.

Windsor T. White resigned as president of the White Motor Co., Cleveland, at a meeting of directors, May 7. He was succeeded by Walter C. White, a brother, who has been senior vice-president. E. W. Hulet, second vice-president and A. R. Warner, secretary, also retired from those positions. Mr. Hulet will remain in an advisory capacity and Mr. Warner was re-elected to the board. Walter C. Teagle, president Standard Oil Co., New Jersey, and William G. Mather, president Cleveland-Cliffs Iron Co., Cleveland, were elected to the board. T. R. Dahl was elected secretary.

Edward F. McGeehan, superintendent open-hearth department, and T. J. Driscoll, chief engineer, Pittsburgh Crucible Steel Co., Midland, Pa., have resigned.

Max Greenberg, general manager New York branch, Rowson, Drew & Clydesdale, London, located at 80 Wall Street, New York, will sail for Liverpool May 12. After a conference of representatives of the company in London, Mr. Greenberg will sail for the Far East, where he will travel for about a year in Japan, China, Australia, India and part of Africa in the interests of the company.

H. O. Garman, Public Utilities Commission, Indianapolis, was elected president of the American Association of Engineers at the convention at Buffalo this week.

The following, who are connected with iron and steel operations in the United States and Canada, were elected to membership in the Iron and Steel Institute at the annual meeting in London last week: Robert Montgomery Bird, metallurgist, Bethlehem, Pa.; Hermann A. Brassert, consulting engineer, Chicago; Robert Hobson, president Steel Co. of Canada, Hamilton, Ontario; J. D. Jones, general manager Algoma Steel Corporation, Sault Ste. Marie, Ontario; George V. Luerssen, metallurgist, Carpenter Steel Co., Reading, Pa.; H. A. Morin, general manager Nicu Steel Corporation, Ltd., Welland, Ontario; Roy M. Wolvin, president Dominion Steel Corporation, Montreal.

Stanley M. Wright has resigned from the Brier Hill Steel Co., Youngstown, Ohio, to accept a position with the General Fireproofing Co., Youngstown. He will be located in the sales office of the Philadelphia branch.

H. H. Rice, formerly treasurer of the General Motors Corporation, and more recently a vice-president of that organization, has been made president and general manager of the Cadillac Motor Car Co., Detroit, a General Motors subsidiary, to succeed Richard H. Collins, who resigned to become associated with William C. Durant in the new Durant Motors, Inc.

Frederick H. Wilkins, European general manager of the International Western Electric Co., New York, with headquarters in London, England, has been elected vice-president of the company.

Joseph G. Butler, Jr., vice-president Brier Hill Steel Co., Youngstown, Ohio, has prepared a history of the Mahoning Valley and biographical sketches of many of its more important men and women, the work now being issued in three volumes. The introduction to the first volume was penned by President James A. Campbell of the Youngstown Sheet & Tube Co., long a personal friend of Mr. Butler, in which he points out that the latter's ability as an author is not the least of his talents. The work contains a complete history of the iron and steel industry of the Valley, with which Mr.



Butler has been actively identified for over half a century.

M. W. Bartlett, Newark, N. J., has been appointed vice-president and general manager of the Splitdorf Electrical Co., Newark, rejoining the company after an absence of a little more than a year. He became connected with the organization in 1911 and remained with it until 1919, acting as secretary during the last six years of this period.

J. T. Dougherty has resigned as superintendent of the Mercer works, American Sheet & Tin Plate Co., at Farrell, Pa., on account of ill health, after serving in that capacity since 1915. W. L. Goodhue of Cleveland will succeed him. He has been in charge of the New Philadelphia and Dover, Ohio, plants of the same company.

J. F. McKeon, for 11 years sales manager of the Continental Bolt & Iron Works, Chicago, has opened an office as foreign trade counsellor, at 522 McCormick Building, Chicago. Mr. McKeon has just returned from a three years' trip around the world, in which he visited practically every foreign trading point of importance with the exception of those in Latin America, and devoted his time to a study of market possibilities for American goods.

George W. Douglas, for eight years identified with the sales department of Rogers, Brown & Co., and latterly with E. C. Humphreys & Co., Chicago, has opened an office at 1123 Conway Building, Chicago, for the sale of pig iron, ferroalloys, coke, and fluorspar. Associated with him as a non-resident partner is W. J. Prowell, seller of fluorspar, manganese ores, etc., Land Title Building, Philadelphia.

William A. Rogers, senior member of the firm of Rogers, Brown & Co., Buffalo, has returned from an extended sojourn in South America.

Gardner C. Derry, formerly district manager of the power apparatus department, New York office, B. F. Sturtevant Co., now takes charge of the fuel economizer and mechanical draft department at the factory home office at Hyde Park, Boston.

Clarence M. Davison has become general superintendent of the Poole Engineering & Machine Co., Baltimore. He was formerly manager of the service station, Alsop Motor Corporation, Richmond, Va.

Matthew C. Brush, formerly president Boston Elevated Railway and the American International Shipbuilding Corporation and now vice-president American International Corporation, New York, and H. M. Baruch, of H. Hentz & Co., bankers, New York, have been elected directors of the Poldi Steel Corporation of America, 115 Broadway, New York.

Frank F. Holt, formerly with the Celluloid Co., New York, is now sales manager of the G. L. Holt Co., Hartford, Conn., hardware, tools and specialties.

## OBITUARY

W. HARRY BROWN, coal and coke operator, died at his home in Pittsburgh, April 28, from an acute attack of heart disease. He was a prominent figure in the coal and coke industry in and about Pittsburgh for more than 40 years. He was born in Pittsburgh, August 11, 1856, and after completing his education in 1876 organized, with his brothers, the firm of W. H. Brown's Sons, which became the largest owner of steamboats and shipper of coal on the Ohio and Mississippi rivers. In 1897 he sold out his interests to his brother, Capt. Samuel S. Brown, and gave his entire time to the firm of Brown & Cochran, of which he was a partner. He was one of the organizers of the Washington Coal & Coke Co. and also owned the Alicia mines, which he disposed of to the Pittsburgh Steel Co. about two years ago. Mr. Brown served one term in the Pittsburgh city council. He was a member of the Duquesne, Union and Pittsburgh Country Clubs, the Pittsburgh Athletic Association, the New York Yacht Club and the American Universities Club of London. He was vice-presi-

dent of the Marine National Bank, Pittsburgh, and a director of the Union Trust Co., Pittsburgh.

HAROLD GEORGE WEIDENTHAL, metallurgical engineer, Cleveland, Ohio, died April 13. He was born in Cleveland, March 16, 1891, was educated in the public schools, graduating from Lincoln High School in 1909 and Cornell University in 1913 with the degree of M.E. During vacations he worked at the Brown Hoisting Machinery Co., the Walworth Run Foundry Co., the Canton Rolling Mills and the Upson Nut Co. In 1913, after graduation, he went with the Lorain Steel Co., Lorain, Ohio, as open-hearth foreman. In 1914 he joined the Upson Nut Co., Cleveland, as metallurgical engineer. The next year he joined John R. Crowley Co., Detroit, as chief electric furnace melter. In 1916 he went to the Standard Chemical Co., Cannonsburg, Pa., as metallurgical engineer. The next year he affiliated with the General Steel Co., Milwaukee, as works manager. From 1918 to 1920 he was with the James H. Herron Co., Cleveland, as vice-president and chief metallurgical engineer. In 1920 he became consulting metallurgical engineer. Mr. Weidenthal was a member of the Cleveland Engineering Society, the American Society for Testing Materials and the American Society for Steel Treating. He was member of the board of directors of the latter society from 1919 to 1920.

LAFAYETTE VAN OSTRAND, who for many years had charge of Eastern sales for the Buffalo Bolt Co., died at the Stratford Hotel, Buffalo, N. Y., on Thursday, April 28.

JOHN W. CAMPBELL, aged 45 years, died at Ashland, Pa., on Thursday morning, April 28. He was one of the outstanding figures in the coke development of the Connellsville region. For the past 19 years he had been a division engineer for the H. C. Frick Coke Co. and was one of the three men who were largely responsible for the underground transportation system of the Frick company, whereby fuel from the majority of the Klondike region plants of the Frick company is transported underground to the Monongahela river and there dumped into barges for transportation to the Clairton by-product plants.

CHARLES HOSMER MORSE, chairman of the board of directors Fairbanks, Morse & Co., Chicago, died at Winter Park, Fla., May 6, at the age of 87. Mr. Morse was born in St. Johnsbury, Vt., Sept. 23, 1833, and educated at the St. Johnsbury Academy, which he left in 1850 to become a clerk for E. & T. Fairbanks & Co., scale manufacturers. He later became a member of the firm of Fairbanks, Greenleaf & Co., Chicago, and Jan. 1, 1872, became the first president of Fairbanks, Morse & Co., later retiring from that position to become chairman of the board. He was a director of the First National Bank, First Trust & Savings Bank and the National Safe Deposit Company, all of Chicago.

LAWRENCE FAGAN, owner of the Fagan Iron Works, Jersey City N. J., died at his home in Hoboken on May 9 of stomach trouble. From 1893 to 1902 he was mayor of Hoboken. He was born in Ireland 70 years ago and came to this country when a boy. He became a blacksmith in Jersey City. Later he went into partnership with the late Isaac Mansfield in the foundry business. Eventually he bought out Mr. Mansfield's interests. John J. Fagan, a son, is now manager of the Fagan Iron Works. About 28 years ago with other men he founded the *Hoboken Observer*, now known as the *Hudson Observer*.

WILLIAM BRADFORD HATHAWAY, for many years identified with the New England stove industry, died May 3 at the Faulkner Hospital, Jamaica Plain, Boston. He was born in Taunton Mass., June 23, 1850, and began his business life as clerk with the Dighton Furnace Co. Five years later he was a stockholder and selling agent of the North Dighton Co-operative Foundry Co., and in 1892 associated with Smith & Anthony Co., Boston, manufacturer of Hub ranges and stoves. Later he became president and continued as such until 1916, when the company liquidated. He then became a stockholder and later vice-president and manager of the Boston office of the Barstow Stove Co., Providence, R. I.

## Trade and Office Changes

The Mesta Machine Co. moved its Chicago office on May 1 from the temporary location in the Railway Exchange Building to permanent quarters in the McCormick Building, Michigan Boulevard.

The Price Iron & Steel Co., Chicago, has moved to larger quarters at 1031-37 Peoples Gas Building.

The H. K. Ferguson Co., Cleveland, removed its Chicago office from the Rookery Building to 1637 Monadnock Building. O. C. F. Randolph remains in charge of the Chicago territory.

The Chicago office of the Uehling Instrument Co., New York, manufacturer of fuel saving equipment, was moved May 1 to the Great Northern Building, 20 West Jackson Boulevard. Walter C. Lange who has been appointed manager of this office was with the Consolidated Gas Co., New York, and the Hammel Oil Burning Equipment Co. and, until recently, in the New York office of the Uehling Instrument Co. He is a member of the American Society of Mechanical Engineers and a graduate in mechanical engineering of the Stevens Institute of Technology.

The Ross Heater & Mfg. Co., Inc., Buffalo, opened a branch office in the New York District, 2 Rector Street, discontinuing its Sales Agency. The office will be in charge of C. M. Hardin, formerly located at the home office.

The Baker R & L Co., 2180 West Twenty-fifth Street, Cleveland, advises that the item which appeared in this column recently to the effect that it had moved from the Leader-News Building to the above address is incorrect. This company's plant is located at 2180 West Twenty-fifth Street, and its offices have always been located at that address.

The Pittsburgh Stamp Co., Inc., has moved its office and factory from 316 Penn Avenue, Pittsburgh, to 811-817 South Canal Street, N. S. Pittsburgh.

The Fat Co. removed its executive and purchasing offices from 501 Fifth Avenue, New York, to 150 West Fifty-seventh Street, New York.

The Hoole Tool & Supply Co., Inc., of which Charles H. Hoole is president, has established itself at its own home, 54-68 Hackensack Street, East Rutherford, N. J. All executive and other business will be conducted there, beginning June 1.

Sota & Aznar, Bilbao, steamship and iron ore mine owners, chartering agents, opened on May 2 New York offices in the Cunard Building 25 Broadway. Rolf Holtvedt, formerly with the Kerr Chartering Co., has been placed in charge of the chartering department.

The Anker Engineering Co., Widener Building, Philadelphia, has completed arrangements with the Wodack Electric Tool Corporation, Chicago, to represent it in the Pennsylvania district and surrounding territory.

Simon Bros., wholesale jobbers of plumbing supplies, iron and steel products, 981-985 Mission Street, San Francisco, have purchased a lot 86 x 275 ft., and are now erecting a reinforced concrete building which will be completed about May 15, the total expenditure being \$125,000. This property is on Townsend Street between Second and Third streets, and has spur track facilities.

William C. Lange, president, and Herbert W. Charnley, secretary and treasurer, have formed the Empire Steel Partition Co., Inc., for the manufacture of hollow steel, extensible type of office partitions. The office and factory are at Third Avenue and Eleventh Street, College Point, N. Y.

The executive, general sales and advertising offices of the Elliott-Fisher Co., manufacturer of bookkeeping and accounting machines, will be removed from Harrisburg, Pa., to the Canadian Pacific Building, Madison Avenue and Forty-third Street, New York, on May 9. The factory and other offices of the company will remain in Harrisburg.

The Alvord Reamer & Tool Co., Millersburg, Pa., has opened a branch office in Chicago at 546 West Washington Boulevard and will carry a complete stock of all items manufactured.

T. J. Davis, C. E. Block and C. B. Cole are identified with this branch office, Mr. Cole acting as manager.

The Power Specialty Co., manufacturer of Foster superheaters, economizers and oil stills, has opened the following additional offices: Kansas City, Mo., 512 Reliance Building; Dallas, Tex., 627 Linz Building. The Kansas City office is in charge of William F. Meyer, who has been with the Power Specialty Co. a great many years and who for the last two

years has been attached to the Chicago sales office. The Dallas office is in charge of M. W. Brown.

The Combustion Engineering Corporation has moved its general offices to the Combustion Engineering Building, 43-47 Broad Street, New York.

David A. Wright, machinery dealer, 568 West Washington Boulevard, Chicago, moved his store to the southwest corner of Monroe and Jefferson streets, May 1.

O. S. Sleeper & Co., manufacturing engineers, 706 White Building, Buffalo, have been formed to furnish a line of vacuum shelf dryers, vacuum rotary dryers, direct heat dryers, flaking machines, crystallizers and special apparatus. The members of the company recently resigned from the engineering staff of the Buffalo Foundry & Machine Co., Mr. Sleeper having been chief engineer for 14 years. O. S. Sleeper is president; H. E. Neubauer, vice-president, and C. B. Brown, secretary and treasurer.

A company has been formed at Akron, Ohio, called the Purchasing Engineer, composed of expert buyers and expeditors of all kinds of commodities entering into various manufacturers' raw materials and all requirements for machine shops, foundries, etc. Clients will be allowed to take advantage of group purchasing. Offices are maintained at 313 South High Street, Akron, and more offices will be established in cities which are large industrial centers.

The Motch & Merryweather Machinery Co., Cleveland, has taken over the sales of the Gordon cam turning lathe, which is now being manufactured by the Willard Machine Tool Co., Cincinnati.

The Pittsburgh district sales office of the Morrison & Risman Co., dealer in new and relaying rails and accessories, has been removed from the House Building to its new quarters, 1123 to 1124 Park Building. The general offices and warehouse of the company are at Buffalo, N. Y., with district sales offices at 778 Drexel Building, Philadelphia, and 66 Broadway, New York.

With the establishment of branches at Spokane, Wash. and 908 Travis Avenue, Houston, Texas, The Gill Mfg. Co. now has 41 branches prepared to give practically 24-hr. piston ring service. The complete Gill stock totals 11,000 sizes and oversizes.

The International Nickel Co. has removed its offices to 67 Wall Street, New York.

The George Oldham & Son Co., manufacturer of pneumatic tools and appliances, Baltimore, has appointed the following agents who will carry a complete line of Oldham pneumatic tools, including shipping hammers, foundry rammers, riveters, scalers, holders-on and repair parts: Andrew Mays Co., 595 Ellicott Square, Buffalo; Zorn & Barker, 80 East Jackson Boulevard, Chicago; J. R. Pettley Co., 318 East Water Street, Milwaukee; H. B. Wilson Co., 915 Olive Street, St. Louis; Charles C. McGill, 702 Marquette Building, Detroit; George C. McKay & Co., 1046 St. Clair Avenue, Cleveland and Penn Machinery & Equipment Co., 2138 Oliver Building, Pittsburgh.

Wickes Brothers, Saginaw, Mich., manufacturers of lathes and plate working tools, have opened a sales office at 501 Fifth Avenue, New York, with Albert E. Braun in charge.

The Byers Machine Co., Ravenna, Ohio, has opened the following direct sales offices to provide better sales and service points for its clientele in the crane and hoist field: New York, F. W. S. Elmes, district manager, room 704, 30 Church Street; St. Louis, Frank E. Miner, district manager, room 700 Rialto Building, St. Louis.

Alfred F. Hofmann, iron and steel merchant and manufacturer's representative, has moved to larger quarters from 40 Wall Street to suite 908 in the new Munson Building, Wall Street.

The Pioneer Coal & Coke Co., Pittsburgh, has opened a district sales office in the National City Building, Forty-second Street and Madison Avenue, New York, in charge of R. I. Wilcox.

B. Davis Co., Inc., has removed its executive office to the Canadian Pacific Building, 342 Madison Avenue, New York. The warehouse will be continued at 610-612 West Forty-fourth Street for the immediate delivery of steel plates, sheets and bars.



## FRENCH MARKETS DULL

**Coke Prices Decline—New Wage Scales in Some Districts—Rolling Mill Orders Improve**  
(Special Correspondence)

LONGWY, FRANCE, April 28.—There is no decided improvement, although there is more activity in various districts. The foundry capacity exceeds the demand. In fact, there are too many foundries in France. The war is responsible for this excess. Many are antiquated. Competition is severe in malleable castings, automobile castings, etc., and comparative offers received from abroad prove that European castings could find a ready market in Canada, America, etc., where the automobile works are large consumers of this kind of material. Prices here are competitive and the material is well finished in steel, cast iron or aluminum.

In semi-finished products, prices are still shaky, and it is reported that a quotation of 34 fr. to 35 fr. per 100 kilos could be obtained for ordinary blooms. Billets range from 39 fr. to 40 fr. and rolled steel bars are at 46 fr. to 49 fr. per 100 kilos. The same prices could be obtained f.o.b. Antwerp for good tonnages from some concerns in Lorraine and along the Moselle.

France is proving to be a good source of supply for thin sheets for automobile and aviation purposes. Prices are competitive, particularly in some Lorraine works and also in the Societe des Forges de Leval-Aulnoye, which has a large capacity for this material.

### Pig Iron Market Dull

Decline in coke prices will probably reduce the cost of pig iron proportionately. Makers are anxious to reduce their stocks of pig iron and have succeeded in numerous instances. Several converters are now in the market for iron. Three furnaces have been blown in in the district of Longwy, but the depression has gained in other districts. No. 3 iron, rough skin, is being sold at from 265 fr. to 270 fr. per 1000 kilos (\$21.62 to \$22.03 per metric ton) f.o.b. trucks, Meurthe et Moselle. Hematite pig iron is generally quoted at 530 fr. per 1000 kilos (\$43.24 per metric ton). The following prices represent the present market:

	Per Metric Ton	
	Fr.	
Pig iron, smooth skin.....	255 to 300	\$20.80 to \$24.48
Pig iron, rough skin.....	225 to 265	18.36 to 21.62
Pig iron, 3.50 to 4.50, silicon...	335 to 375	27.33 to 30.60
Ferroalloys		
Ferromanganese, 76 to 80 per cent .....	1050 to 1225	85.68 to 99.96
Ferrosilicon, 45 per cent.....	825	67.32
Ferrosilicon, 75 per cent.....	1320	107.71
Ferrosilicon, 90 per cent.....	1900	155.04

### New Wage Scale in Meurthe et Moselle

Workmen in various districts have protested against what they consider a too drastic curtailment of wages. Employers, however, contend that the cost of living has taken a real slump and that the laborer must make the same sacrifices as the manufacturers. Protests have been lodged by engineers in the district of Dunkirk with the French Government, against the intrusting of repairs on French steamships to Spanish shipyards. In the district of Meurthe et Moselle the new daily wage scale calls for 9.50 fr. per day for female skilled workers; 9 fr. per day for unskilled female workers; 16.50 fr. per day for blacksmiths, draftsmen, etc.; 15.80 fr. per day for fitters, millers and foundrymen, and 15 fr. per day for other skilled workers.

### Rolling Mills Show Improvement

Rolling mills have been booking substantial orders and are quoting from eight to 10 weeks delivery. This situation has been brought about partly because stocks have been exhausted and partly through new confidence that the Government will successfully exact the German indemnity. The same condition does not, however, prevail among the furnaces, which still have considerable stocks of pig iron and are organizing for export trade to obtain relief. While Ruhr district coke is officially quoted at 110 fr. per ton (\$8.97 per metric

ton) it is obtainable without difficulty for 90 fr. per ton (\$7.34 per metric ton). Rolled steel bars are offered by some French producers at 420 fr. to 445 fr. base, per metric ton (\$34.27 to \$36.31). Steel hoops are quoted at from 60 fr. to 68 fr. per 100 kilos (2.22c. to 2.51c. per lb.). A normal price for rolled steel bars is 45 fr. per 100 kilos (1.66c. per lb.). Recent rumors of a possible decline of bars to a basis of 40 fr. to 42 fr. per 100 kilos (1.48c. to 1.55c. per lb.) are no longer regarded as possible, at least for some time, as the present high tariff on iron and steel is expected successfully to protect the industry against Belgian and German competition.

Heavy steel beams are now quoted at 550 fr. per metric ton (\$44.88 per metric ton). This price is for orders of from 20 to 50 tons. On small lots 1, 2 and 4 per cent is added and for large tonnages discounts from this price of 1, 2 and 3 per cent are offered. The syndicate controlling plates and slabs has fixed a price of 75 fr. per 100 kilos for slabs, 85 fr. per 100 kilos for heavy plates, 90 fr. per 100 kilos for medium gage sheets and 95 fr. for light gage sheets.

## French Pig Iron Production

Figures prepared by the French Commission in the United States show that the 1920 pig iron production of France was 64 per cent of the high record of 1913, and showed a healthy gain over the outputs of 1918 and 1919. Cast iron in 1920 exceeded 80 per cent of pre-war output; basic pig iron was almost 60 per cent and special cast iron over 30 per cent. Exports of pig iron more than doubled, being 306,000 tons in 1920 and 148,000 in 1913.

### French Pig Iron Output in Tons

1900.....	2,669,966	1918.....	1,297,000
1910.....	3,974,478	1919.....	2,400,000
1913.....	5,207,197	1920.....	3,317,371

## Light on the American Shipping Problem

(Continued from page 1250)

the United States more than \$3,000,000,000, without legislation revising our navigation laws is impossible. Without this legislation and revision making it profitable to our citizens to operate these ships, it will mean that they will ultimately fall into disuse or find their way into the hands of foreigners at breaking-up prices to confront us later with real examples in cost of operation based upon the then capital charges.

### Make Charters to Shipping Firms

As stated, a large amount of tonnage would undoubtedly have been disposed of a year or more after the armistice if the opportunity had been taken advantage of. But it was not; and while the cost of the ships will be written down eventually to a reasonable figure, the ships cannot be sold until a market exists for them and until that the investors will not furnish the money to buy them. Meanwhile they will at least save the Government large outlay in carrying on their present plan of operation, if chartered to shipping people on a competitive bare boat basis. This will relieve the Government of expense and enable the ships to earn a moderate revenue. Large numbers of foreign ships similar to the so-called lake type are under charter to Americans in the Cuban sugar and near-by trades which could be covered by American vessels.

The bare boat charter basis with an early revision of our navigation laws—the latter an urgent requirement of the situation—might be called a plan to enable shipping people to send our ships to sea upon terms of equality.

Giuseppi Anton, who lost his sight as the result of an accident at the limestone quarries of the Carnegie Steel Co., Kaylor, Pa., is to be sent to his home in Italy and provided with sufficient funds to meet his future needs by the Carnegie Steel Co. Anton was a veteran of the World War, having served with the Italian forces, and came to this country at the close of the war. He was in the employ of the Carnegie Steel Co. less than a year.

# Machinery Markets and News of the Works

## DULLNESS CONTINUES

### No Improvement in Volume of Machine Tool Inquiries and Orders

#### One Automobile Company Buys a Few Tools— A Few Export Inquiries

No improvement worthy of note has appeared in the machine-tool markets, though it is significant that one automobile company has bought in a small way at Chicago. The Haynes Automobile Co., Kokomo, Ind., has purchased six milling machines and other tools. Otherwise business in that and other markets consists chiefly of single-tool orders.

A few export inquiries which have appeared recently in New York have not inspired confidence that business will result. A machine-tool list totaling about \$1,000,000 has been put out on behalf of a locomotive works in Sweden, but the trade is skeptical. The tools are said to be wanted for construction of some 3000 locomotives for Russia.

An export company has issued a list of 15 second hand tools for export to Japan.

The Badger Fire Extinguisher Co. has established a plant at Roxbury, Boston, and has bought a few tools. The Lombard-White Co., washing machine manufacturer, Worcester, Mass., is negotiating for a few machines.

At Cincinnati the only inquiry of any size is from the Big Four Railroad, which requires about \$80,000 worth of tools for its various shops.

## New York

NEW YORK, May 10.

There continues to be a fair volume of export inquiry, but few orders are being placed, and the character of some of the inquiries is such as to inspire no confidence that buying will result. For example, one of the current inquiries covers about \$1,000,000 worth of locomotive shop equipment for a company in Sweden said to have a contract for some 3000 locomotives for Russia. This inquiry is put out by the Halpern-Wien Co., 110 West Fortieth Street, New York, which is affiliated with the Federal Equipment & Supply Co. The local trade is rather skeptical of such inquiries, especially when they involve, directly or indirectly, business with Russia.

The A. R. Brown-Macfarlane Co., 90 West Street, has issued an inquiry for 15 miscellaneous second-hand tools for export to Japan.

Moens & Beck, Rokin 122, Amsterdam, Holland, engineers and merchants, doing business in Holland and the Dutch East Indies, desire to make arrangements direct with American manufacturers of iron and steel products, including machinery, acting as direct representatives, perhaps on a commission basis, perhaps salary and commission, or as merchant importers.

Inquiry for cranes is light, few sales being reported and most of the cranes in the market having been pending for some time. Bidding on the 20-ton overhead traveling crane opened May 3, by the city of Philadelphia was close. The Erie Steel Construction Co. was the low bidder at \$10,485. Among current inquiries are: Joseph T. Ryerson & Son, 30 Church Street, New York, five 15-ton and five 20-ton hand power hoists for export; William Messer Co., 27 Suffolk Street, New York, a 20-ton, 12-ton, 8-ton and 5-ton high speed, chain hoist; Lombard Governor Co., Ashland, Mass., a 20-ton, 21-ft. span overhead traveling crane with 20-ton trolley. The L. B. Foster Co., 154 Nassau Street, New

York, has asked for prices on a used 5-ton to 10-ton, 40-ft. boom locomotive crane for handling steel rails and the Equipment Corporation of America, Philadelphia, is in the market for a used 15-ton, 50-ft. span overhead traveling crane, two-phase, 60 cycle, 220 volt motor for alternating current. The Gillespie Contracting Co., 9 Dey Street, New York, will close this week for a 15-ton locomotive crane.

Among recent sales are: Whiting Corporation, two 26-ton, 58-ft. 3¼-in. span overhead traveling cranes to the Cuba Co., 52 William Street, New York, for export; Armington Engineering Co., Euclid, Ohio, a 10-ton, 53-ft. span and a 1-ton, single I beam hand power crane to the M. W. Kellogg Co., Jersey City, N. J.; Chisholm-Moore Mfg. Co., a 3-ton and a 6-ton hand power crane to the United Electric Light & Power Co., New York.

The Jenkins Mfg. Co., 20 Vesey Street, New York, manufacturer of valves, brass goods, etc., has awarded contract to Walter Kidde & Co., 90 West Street, for a three-story addition, 50 x 80 ft., to its plant on Farrand Street, Bloomfield, N. J., estimated to cost about \$40,000.

The Burley Welding Works, 22-24 Kosciuszko Street, Brooklyn, is taking bids for a three-story, brick addition, 40 x 100 ft., to cost about \$50,000. Edward M. Adelsohn, 1778 Pitkin Avenue, is architect.

Klump's Tool & Die Works, Inc., Brooklyn, has been incorporated with a capital of \$50,000 by G. Klump, F. Ziegler and G. Hipwood, to manufacture tools, dies and similar products. B. B. Greller, 299 Broadway, New York, represents the company.

George Schlegel, Inc., New York, has been incorporated with a capital of \$500,000 by George Schlegel, Sr. and Jr., J. W. Jacobus, and I. M. Obrecht, 55 Liberty Street, to manufacture printing machines and parts.

The Acorn Motor Equipment Corporation, Brooklyn, has been incorporated with a capital of \$200,000 by C. J. Wykel, A. A. Hadden and F. Baesler, to manufacture automobile equipment. M. Van Blarcom, 35 Nassau Street, represents the company.

The General Purchasing Officer, Panama Canal, Washington, and 24 State Street, New York, will receive bids up to May 25 for steel rope, magnet wire, tractor mowing machines, valves, bolts, anvils, drills, and other products as set forth in Circular 1448. A. L. Flint is general purchasing officer.

S. Weisglass & Co., 13 Montauk Avenue, Brooklyn, manufacturers of brass beds, have plans under way for a two-story top addition to their plant and other improvements.

The Machine Implements Mfg. Co., Mamaroneck, N. Y., has been incorporated with a capital of \$50,000 by R. P. Walsh, K. M. Goldsmith and E. Levy, Mamaroneck, to manufacture machinery, tools, etc. L. H. Burton, 66 Broadway, New York, represents the company.

Refrigerating machinery, transmission equipment and other mechanical apparatus will be installed in the new brick and concrete ice and refrigerating plant to be erected by the Yonkers & Mt. Vernon Ice Corporation, 29 South Eleventh Avenue, Mt. Vernon, to be 100 x 130 ft., and estimated to cost about \$100,000 with machinery. Sibley & Featherstone, 101 Park Avenue, New York, are architects.

The National Carbon Co., 30 East Forty-second Street, New York, has filed plans for a one-story furnace building, 24 x 51 ft., at its plant on Nelson Avenue, Long Island City.

The Department of Labor, Bureau of Immigration, Ellis Island, N. Y., has compiled a list of machine tools to be purchased for installation at a local shop, including lathes, cutters and tool grinders, drills, etc.

The Madison Power Co., Utica, N. Y., has been incorporated with a capital of \$200,000 by E. F. Joerissen, A. J. Eckert and F. C. Thurwood, Utica, to construct an electric power plant for service in Madison and Oneida counties. Dunmore, Farris & Dewey, Utica, represent the company.

The Westinghouse Air Spring Co., 109 West Sixty-fourth Street, New York, has acquired the plant of the Trego Motors Corporation, New Haven, Conn., at a public sale, for \$72,250, and will establish new works.

The Commonwealth Garage, Inc., 132 East Forty-first Street, New York, has leased a four-story building to be erected at 130 East Forty-first Street, for a service and repair works. It will cost about \$40,000, exclusive of equipment.



The Interstate Foundry Specialties Co., New York, has been organized to manufacture foundry equipment. S. H. Poland and J. T. Crane, 2 Rector Street, head the company.

The Squire Products Co., New York, has been incorporated with a capital of \$35,000 by J. H. Kavanaugh, F. D. Reid and H. C. Quinby, 165 Broadway, to manufacture cutlery and similar products.

The Otis Elevator Co., Eleventh Avenue and Twenty-sixth Street, New York, will rebuild the plant of its French subsidiary at Albert, France, destroyed during the war. A claim of 11,000,000 fr. has been made, and about one-third of this sum has been received. The entire amount will be used in connection with rebuilding.

The Cling-Cutlery Corporation, Elmhurst, L. I., has acquired the plant of the Newtown Tire Co., Alvin Street, fronting on the tracks of the Long Island Railroad, for the establishment of new works. It consists of a number of one-story buildings and occupies a site 95 x 298 ft. Machinery will be installed at once for the manufacture of special scissors with removable blades. The company has heretofore maintained headquarters at Marlboro, N. J.

The Fordham Plaza Auto Co., Fordham, New York, has had plans prepared for a new three-story service and repair building at 2494-98 Webster Avenue, extending to 4775 Park Avenue.

The Standard Tank Car Co., 233 Broadway, New York, manufacturer of steel tank cars, steel underframes and other steel and steel plate work, has arranged for an issue of equipment trust certificates totaling \$1,550,000. John Stevenson, Jr., is president.

The Naturelle Reproductions Corporation, New York, has been incorporated with an active capital of \$37,000 by S. W. Hanson, H. L. Ward and F. C. Dale, 52 Wall Street, to manufacture talking machine equipment and parts.

The Clutch Quoin Mfg. Co., 111 Randolph Street, Jersey City, N. J., has filed notice of organization to manufacture printing press equipment. George Duncanson, Sr. and Jr., head the company.

The Augorcon Co., Passaic, N. J., has been incorporated with a capital of \$1,000,000 by Thomas A. Hopkins, Joseph F. Connolly and Dudley L. Gordon, 625 Main Avenue, to manufacture iron and steel products.

The Union Garage Co., 274 King Street, Perth Amboy, N. J., is having plans prepared for a two-story service and repair building on King Street, 101 x 152 ft., to cost about \$60,000.

The Hibbard Process Corporation, East Orange, N. J., has been incorporated with a capital of \$100,000 to manufacture wrought iron under a special process. The company is represented by Harry H. Picking, 525 Main Street.

The Storage Heater & Furnace Co., Highlands, N. J., has been incorporated with a capital of \$300,000 by Grandin V. and Harry N. Johnson, and William Koch, Highlands, to manufacture furnaces, heaters and general heating equipment.

The M. W. Metal Co. of America, Inc., Elizabeth, N. J., has been incorporated with a capital of \$100,000 by Otto Blair, Anton Schuler and George Schmidt, Jr., 713 Elizabeth Avenue, to manufacture metal products.

The Melvin Electric Co., 14 Essex Street, East Orange, N. J., has filed notice of organization to manufacture electrical equipment. R. F. Melvin heads the company.

The Lincoln Body Co., Rahway, N. J., has been incorporated with a capital of \$350,000 by Frank J. Johnson and Allen L. Toth, 360 St. George Avenue, to manufacture automobile bodies.

The Board of Freeholders, Newark, N. J., has approved plans for the erection of a new one-story industrial building, 60 x 170 ft., at the Overbrook Hospital, Overbrook, to cost about \$125,000 with machinery. Frederick S. Sutton, 9 Clinton Street, is architect.

The Reeves Mfg. Co., Newark, N. J., recently organized to manufacture brass fixtures and other metal products, has acquired property on Passaic Avenue, as a site for its new plant. Plans will be prepared at once. Arthur Reeves is one of the heads of the company.

The Motolock Mfg. Co., 15 Clinton Street, Newark, N. J., has been incorporated with a capital of \$125,000 by Charles H. Rust, G. Seaverns and Philip M. Gehl, to manufacture metal goods.

The W. B. Bearings Co., 441 South Eleventh Street, Newark, has filed notice of organization to manufacture automobile bearings. Charles L. Warren and John Bobker, 195 Ridgewood Avenue, head the company.

The Herman Gumz Boiler Works, 7 Greenwood Lake Railroad Avenue, Newark, has been incorporated with a capital of \$100,000 by Herman H. Gumz, Andrew W. Stevenson, and Frank Mullins, to manufacture boilers and other plate products.

J. Steinberg & Sons, Inc., Newark, has been incorporated with a capital of \$125,000 by Jacob, Louis J. and Irving C. Steinberg, to manufacture cornices and other metal products. Kanter & Kanter, 747 Broad Street, represent the company.

The Commercial Auto Radiator Mfg. Co., 46 Hill Street, Newark, has been organized to manufacture automobile radiators and other metal specialties for automobile service. P. G. Span, 366 Washington Street, heads the company.

The Radium Aluminum Mfg. Co., Newark, has been organized by L. Gruskos, H. Heller and L. Brack and has acquired buildings at 263-5 New York Avenue for the manufacture of Radium brand aluminum ware. William D. Zilsky, lawyer, represents the company but has no other connection with the firm.

## Philadelphia

PHILADELPHIA, May 9.

The David Lupton's Sons Co., Allegheny and Tulip streets, Philadelphia, manufacturer of metal sash, etc., has acquired property at 2221-69 Frankford Avenue, in the vicinity of its works, for future expansion. No announcement has been made of any immediate intention of building.

The Philadelphia Electric Co., Tenth and Chestnut streets, Philadelphia, has arranged for a stock issue of \$5,000,000, a portion of the proceeds to be used for plant and system extensions and improvements. Joseph B. McCall is president.

The Ransom, Barton Co., Philadelphia, is being organized by Irvin R. Barton, Charles A. Ransom and Peter F. Ingerle to manufacture cooking equipment, metal kitchen utensils and heating apparatus. Application for a State charter will be made on May 30. John Arthur Brown, Land Title Building, represents the company.

The University Tinware Mfg. Co., Philadelphia, has been incorporated with a capital of \$100,000 by David N. and R. Scher and I. A. Roseman, 1021 North Front Street, to manufacture tin and other metal utensils and specialties.

The Budd Wheel Co., Philadelphia, is being organized by Edward G. Budd, Hugh L. Adams and William B. Read, to manufacture iron and steel wheels. Application for a State charter will be made May 31. Theodore F. Jenkins, Liberty Building, represents the company.

Joseph J. Derham, Rosemont, Philadelphia, operating a wagon building plant, has organized the Derham Body Co., with capital of \$200,000, to manufacture automobile bodies.

The Atlas Machine, Tool & Welding Co., Philadelphia, has been incorporated with a capital of \$50,000 to manufacture tools, machine parts, etc. Alfred Kaplin, 4602 Greene Street, is treasurer.

The Crew-Levick Co., 111 North Broad Street, Philadelphia, operating two oil refineries with capacity of about 80,000 bbl. per month, has arranged for a bond issue of \$1,500,000, a portion of the proceeds to be used for proposed extensions and improvements. The company is operated by the Cities Service Co., 60 Wall Street, New York.

A forge and machine shop will be built by the Freihofer Baking Co., Land Title Building, Philadelphia, at its new plant at Fifth and Berkeley streets, Camden, N. J., estimated to cost about \$600,000.

George C. Crossley, president Crossley Mining Co., Toms River, N. J., with clay properties at Crossley, Ocean County, is organizing a company to manufacture an excavating machine which he has invented. Other interests in the company are from Trenton, N. J., and it is planned to establish a factory in the latter city.

Fire, April 29, destroyed a number of buildings at the plant of the Titan Metal Co., Bellefonte, Pa., manufacturer of brass and bronze products, with loss estimated at \$100,000.

Barrett & Haentjens, Hazleton, Pa., manufacturers of centrifugal pumps, etc., are planning for the erection of a one-story foundry addition.

The Bodin Spark Plug Co., Allentown, Pa., recently organized to manufacture spark plugs, is arranging for the operation of a plant at 1106 Court Street.

The York Vapor Heating Co., York, Pa., manufacturer of heating apparatus, has been reorganized with Charles E. Scott as president and J. W. Glassey, manager of the Philadelphia office, vice-president. The company plans for enlarged operations.

## New England

Boston, May 9.

No improvement is noted in machine-tool orders. The largest individual sale the past week included two 14-in. x 6-ft., one 16-in. x 6-ft., one 18-in. x 6-ft. and one 20-in. x 6-ft. lathes, with spacing and other attachments, to the Atlas Die-Casting Co., Inc., Worcester, Mass. The Badger Fire Extinguisher Co. has opened a plant in Roxbury, Boston, and has purchased lathes and other metal-working equipment, chucks, furnaces, etc., some of the machinery new and some used. In addition, perhaps a dozen various kinds of machines have been sold to as many manufacturing interests. Inquiries for single machines are still under negotiation, but prospective customers appear in no hurry to cover as long as competition for business remains keen. The Lombard-White Co., washing machines, Worcester, is negotiating for multiple spindle equipment and another Worcester concern for a fairly large hammer.

Prices on new machinery are generally steady and unchanged. It is claimed, however, that concessions of an extra 5 per cent have been offered in certain instances in the hope of closing contracts. New England machine-tool builders report business no better and it is intimated additional plants will shut down in the near future unless incoming orders increase. Stone & Webster, Boston, are about to close on a 30-ton, three-motor crane for an Ohio plant, but the crane market otherwise is without feature. On May 13, J. E. Conant & Co., Lowell, Mass., will sell at public auction the equipment in the plant of the Highland Machine Co., 58 Kemble Street, and the Boston Saw and Tool Co., 324 Harrison Avenue, Boston, including lathes, grinding machines, planers, hand milling machines, upright and sensitive drills, presses, power hack saws, etc., etc.

The Arnold Electric Tool Co., New London, Conn., has closed an order with a Western concern for 3000 electric drills, involving \$200,000, and is negotiating with other interests for a \$500,000 order. A Worcester manufacturer of small motor-driven hand grinding tools has recently completed a large order placed by an electrical appliance manufacturer for a South American subsidiary. Other makers of small metal-working equipment report slightly increased inquiries, with the demand for small tools holding up well.

The local market on taper pins, No. 5 and smaller, is 55 per cent discount, heretofore it was 50, and on No. 6 and larger, 40 per cent discount, against 35 formerly. The S. W. Card Mfg. Co., Mansfield, Mass., taps, dies, screw plates, etc., has issued a new list which shows a cut of 10 per cent on some items. The market on at least one make of pipe vises is at least 10 per cent lower.

Joseph Beal & Co., Boston, dealers in new and used machinery and tools, advise that they have a temporary warehouse at 87-89 Water Street, Springfield, Mass., and are selling used machinery there, but not by auction, as stated in THE IRON AGE last week. They are conducting a private sale on account of being obliged to vacate the premises.

Robert H. Fox, Hartford, Conn., will build a garage and service station at Asylum Avenue and Hopkins Street. Details have not yet been worked out, although foundation work has begun.

The Smith-Springfield Body Corporation, Springfield, Mass., manufacturer of automobile bodies, has awarded contract to the Ernest F. Carlson Co., 244 Main Street, for a new one-story, brick and steel addition, 90 x 320 ft., with ell extension, 30 x 100 ft. The company has recently increased its capital from \$1,000,000 to \$4,000,000.

The Swaging Machine Products Co., 201 Waldo Street, Providence, R. I., has filed notice of organization to manufacture machinery and parts. Oscar J. and R. R. Maynard head the company.

The Sandell Specialties Co., Groton, Conn., has been incorporated with a capital of \$50,000 by A. B. Sandell and P. Z. Hankey, 319 Plant Building, New London, Conn., to manufacture adjustable pipe templates and similar products.

The Connecticut Light & Power Co., Waterbury, Conn., has arranged for a bond issue of \$6,500,000, a portion of the proceeds to be used for additions to electric generating plants. Irvin W. Day is vice-president.

The YD Service Garage, Inc., 341 Newberry Street, Boston, has plans under way for a six-story addition, with service and repair department, and parts manufacture. It will cost about \$600,000. J. Dallas Corbiere is manager.

The Harwood Mfg. Co., Boston, has been incorporated with a capital of \$100,000, to manufacture iron and steel products. Robert Harwood, Boston, is president, and F. S. Harwood, 551 Fulton Street, Medford, Mass., treasurer.

Charles H. Harris, Norwalk, Conn., head of Charles H. Harris, Inc., is planning for the erection of new one-story,

brick and steel works, on property recently acquired, for the manufacture of automobile windshields. It is estimated to cost close to \$75,000.

New power plant equipment and other machinery will be installed by C. M. Bailey & Co., Winthrop, Me., in connection with rebuilding their oilcloth manufacturing plant, recently destroyed by fire with loss of about \$150,000, including equipment.

The Bickford-Switzer Co., Inc., Greenfield, Mass., has been incorporated with a capital of \$25,000 to manufacture small tools and implements. Frank O. Wells is president, and Bernard M. Switzer, treasurer, both of Greenfield.

The Mohawk Mfg. Co., Waterbury, Conn., has been incorporated with a capital of \$50,000 by M. McCarthy and W. E. Monagan, 84 Euclid Avenue, to manufacture metal products.

George Lawrence, 24 Cambria Street, Boston, manufacturer of automobile springs and operating a general repair plant, will commence erection at once of a one-story foundry, 90 x 90 ft., at Greene and Landsdowne streets, Cambridge, Mass.

## Chicago

CHICAGO, May 9.

The Haynes Automobile Co., Kokomo, Ind., has purchased six milling machines, and other miscellaneous tools. Aside from this buying has been largely confined to individual machines. Small shops predominate as buyers and prospective purchasers of machinery. There has been a fair movement of used equipment the past week. One dealer sold a second-hand 36-in. x 36-in. x 8-ft. planer, and a 30-in. x 16-ft. engine lathe, while a 20-in. engine lathe, a 26-in. shaper, a large punch press, two hand screw machines and an air forging hammer were shipped to out of town customers from local stocks. Some sellers report that old accounts are being settled and, in view of the difficulties in collections since last autumn, this development is regarded as an encouraging sign of a gradual improvement in business.

The C. K. Tool & Die Works, 1637 West Lake Street, Chicago, has had plans prepared for a one-story machine shop, 100 x 125 ft., at Iowa Street and Kilpatrick Avenue, to cost \$50,000.

The Ferro Mfg. Co., manufacturer of automobile specialties, 2011 South Michigan Avenue, Chicago, plans the construction of a factory at Belvidere, Ill.

The Home Hot Blast Furnace Co., Grand Rapids, Mich., is building an addition to its plant.

The Economy Tool Co. is occupying the old Ford garage on West Market Street, Warsaw, Ind., and will manufacture ratchet wrenches.

The Gary Steel Products Co., Gary, Ind., has been incorporated with \$50,000 capital stock by A. H. Roy, W. E. Clarin, E. G. Wells, E. W. Peterson and Edward Stohl.

B. T. Olsen is having plans prepared for a one-story garage, 85 x 180 ft., at Catalpa Avenue, near Broadway, Chicago, to cost \$30,000.

The plant of the Advance Automobile Accessories Corporation, 4346 Wentworth Avenue, Chicago, was recently damaged by fire.

The Schaefer, Delude, Wallace Co., 1610 Wentworth Avenue, Chicago Heights, Ill., has been incorporated by John Stone, David Jacker and Dwight P. Green to manufacture hotel and restaurant equipment, machinery, etc.

J. F. Davis & Sons Co., 111 West Monroe Street, Chicago, has been incorporated by J. F. Davis, J. G. Squires and Charles Johnson with \$500,000 capital stock to manufacture steam boilers and other metal products.

The Furnace Lining Materials Co., 53 West Jackson Boulevard, Chicago, has been incorporated with \$50,000 capital stock by F. U. Cornely, C. L. Lesley and W. D. Shepherd.

The Wiebner Machine Co., Quincy, Ill., has awarded a contract for a one-story machine shop, 60 x 90 ft., to cost \$40,000.

The Petroleum Motor Corporation, 220 South State Street, Chicago, will erect a two-story plant, 270 x 720 ft., at Rockford, Ill. R. C. Dale is manager and the Arnold Co., 105 West Monroe Street, Chicago, the architect.

The Worth Wire Works, Kokomo, Ind., will soon award a contract for a one-story wire plant, 60 x 100 ft., to cost \$25,000. C. Ferriter, Kokomo, is the architect.

The Kramer Motor Co., 1518 Hennepin Avenue, Minneapolis, Minn., is having plans drawn for a two-story garage, 154 x 162 ft., to cost \$50,000.

The Chicago Chaplet Co., Inc., 1925 North Paulina Street,



Chicago, has been incorporated with \$16,000 capital stock to manufacture chaplets, tools, machinery, foundry supplies, etc. The organizers are Henry and Herman Bellon, Thomas Humphrey and William O. Bartel.

The Petroleum Motors Corporation, 220 South State Street, Chicago, has taken bids for a new plant at Rockford, Ill., to manufacture automobile motors, estimated to cost about \$2,000,000 with machinery. The Arnold Co., 105 West Monroe Street, is engineer.

The C. & K. Tool & Die Works, 1637 West Lake Street, Chicago, is completing plans for a new one-story machine shop at Iowa and Forty-seventh avenues, 100 x 125 ft.

The City Engineering Department, Des Moines, Iowa, is having plans prepared for the erection of a one-story, electrically operated pumping plant to cost about \$150,000.

The Industrial Potash Corporation, Rockford, Ill., recently organized with a capital of \$30,000,000, is planning for the erection of a plant in the vicinity of Marysville, Utah, to cost about \$1,000,000 with machinery. The initial works will have a capacity of about 10,000 tons of material per day. The company is headed by Jacob H. Krause and Ross P. Beckstrom, Rockford, and is represented by Louis Grollman, 111 West Monroe Street, Chicago.

G. A. Koester, Jr., 741 Perry Street, Davenport, Iowa, has completed plans for a three-story automobile service and repair building, 60 x 150 ft., at Scott and Harrison streets, to cost about \$100,000.

The State Commission, Topeka, Kan., is having plans prepared for a new two-story electric power plant at Kansas University, Lawrence, 75 x 118 ft., to cost about \$300,000 with machinery. J. M. Shea, Kansas University, is engineer.

## Cleveland

CLEVELAND, May 9.

Dealers are doing a fair volume of business in used machinery which finds ready sale when offered at bargain prices. The equipment of the Enterprise Tool Co., Cleveland, which is being disposed of and has been used but little, is bringing from 50 to 65 per cent of present prices. The demand for tools is coming mostly from small machine shops. Sales the past week include four milling machines and several presses. Inquiries for small lots of machinery have improved somewhat, but many prospective purchasers are advising dealers that they will not place orders until business conditions improve.

The Taft Metal Pattern & Mfg. Co., Cleveland, has been incorporated with a capital stock of \$10,000 and will take over the pattern shop formerly conducted by F. W. Taft, 1366 West Seventieth Street. Mr. Taft is president of the new company.

J. H. Sherer and others are interested in the Sherer Machine Co., Cuyahoga Falls, Ohio, which has been incorporated with a capital stock of \$25,000.

The Barsteel Products Co., 1250 West Seventy-sixth Street, Cleveland, has been incorporated for \$50,000 and has taken over the screw machine department of the Globe Machine & Stamping Co., to manufacture screw machine products. It is in the market for an oil separator, grinder and other tools. A. R. Purmort is president.

## Buffalo

BUFFALO, May 9.

The Cabinola Co., Buffalo, recently organized to manufacture filing equipment, cabinets, etc., has leased the four-story and basement building at 35-45 Henry Street for its new plant, and will install machinery at once. It is expected to give employment to about 50 operatives for initial production. Henry Schuetze, Jr., is president.

The Elgin Safety Razor Co., Buffalo, has been incorporated with a capital of \$50,000 by W. J. Slisz, W. and J. Nowak, to manufacture safety razors and other cutlery. W. H. Godbold, Brisbane Building, represents the company.

The Kay H. Kay Co., Buffalo, has been incorporated with a capital of \$150,000 by Gunson R. Wood, Morris E. Wire and George A. Clauss, Niagara Life Building, to manufacture agricultural implements, hardware, etc.

Frank H. Duell and Morle Shearman, 12 Myrtle Street, Jamestown, N. Y., will build a two-story automobile service and repair building at Fourth and Lafayette streets, to cost about \$50,000.

The Parkin Machine Works, Inc., Spencerport, N. Y., has been incorporated with an active capital of \$100,000 by J. F. Parkin and W. Buhl, to manufacture machinery and parts. John L. Heider, Ellicott Square, Buffalo, represents the company.

The Master Motors Corporation, Erie, Pa., is considering

the erection of a new automobile manufacturing plant to cost about \$500,000 with machinery. D. H. Palmer is president.

The Pyramid Engineering Corporation, Buffalo, N. Y., has been incorporated with a capital of \$25,000 by M. P. Ryley, F. R. Gordon and H. J. Auer, to manufacture power hoists and other hoisting machinery. Moot, Sprague, Brownville & Marcy, Erie County Bank Building, represent the company.

The Oliver Truck Co., Buffalo, has leased the building at 263-69 Oak Street, for the establishment of a new machine and repair works. The structures will be remodeled.

The Ken-Mer Engineering Corporation, Buffalo, has been incorporated with a capital of \$33,000 by J. E. Durkin, E. Hagemir and J. H. McPhee, to manufacture refrigerators and refrigerating equipment. Franklin R. Brown, White Building, represents the company.

The Ithaca Specialty Co., Inc., Ithaca, N. Y., has been incorporated with a capital of \$100,000 by J. W. Kelly, E. A. Smith and F. H. Springer, 118 Hudson Street, to manufacture machinery and tools.

## Pittsburgh

PITTSBURGH, May 9.

Activities in the machine-tool market in this district still are more prospective than actual. A Hendee lathe, 18-in. x 10-ft., has been sold to the Power Piping Co., Pittsburgh, and the firm making this sale also placed a large drill press with the Follansbee Brothers Co., Pittsburgh, for installation in its new plant at Toronto, Ohio. A fair number of small tools is moving out of dealers' stocks, but generally business is dull and unsatisfactory. There is no lack of inquiry, but a lack of willingness is noted on the part of buyers to spend money on new machines. This also seems to be the case with cranes and other heavy equipment. Crane makers are figuring against inquiries from several Steel Corporation subsidiaries, the Bethlehem Steel Co. for its Steelton plant, and the Midvale Steel & Ordnance Co. for its Johnstown works. No orders are coming from these sources for the reason that those who have the decision over appropriations at present are disinclined to grant them. Tentative plans have been prepared for a new foundry by the Clearfield Machine Co., Clearfield, Pa., but the equipment that will be required merely is on paper. The West Penn Power Co. has had an inquiry out for a 1-ton crane for lifting and changing the batteries of mine locomotives for the Windsor Coal Co., Wellsburg, W. Va., a subsidiary. The order is likely to go to a Detroit manufacturer. A slight change of specifications is holding up the award by the Pittsburgh Screw & Bolt Co. of the crane and monorail hoist for its new plant, and the International Nickel Co. has not yet awarded the drives, motors and steam hammers for its new plant at Cumberland, W. Va.

The Iron & Steel Products Co., Pittsburgh, is being organized by Oliver G. Boyd, E. C. Sattley and R. J. Jones, to manufacture metal products. Application for a State charter will be made on May 31. James F. Burke, 518-27 Farmers' Bank Building, represents the company.

The Pittsburgh Fire Alarm Co., Pittsburgh, has been incorporated with a capital of \$50,000 to manufacture electric alarms and other electrical equipment. J. H. Forrest, 1421 Bristol Street, is treasurer.

The Monovalve Steam Motor Corporation, McKeesport, Pa., has been incorporated with a capital of \$500,000 by John F. McCarthy, George J. Young and Frank W. Ofeldt, McKeesport, to manufacture steam motors for automobile and other service.

The Tru-Way Razor Co., Elmsworth, Pa., has been incorporated with a capital of \$90,000 by John H. Vance, George T. Miller, Elmsworth, and Theodore M. Pinkerton, Avalon, Pa., to manufacture razors and other cutlery.

The Eureka Rubber Preserving Co., Huntington, W. Va., recently organized with a capital of \$400,000, is planning for the erection of new works for the manufacture of rubber products, including special rubberized automobile tires. A. E. Kelly is president.

G. S. Kenner, Weston, W. Va., is having plans prepared for a two-story automobile service and repair works, 103 x 115 ft., to cost about \$50,000. A. Breternitz, Clarksburg, W. Va., is architect.

The Clearwater Coal Co., Fairmont, W. Va., recently organized with a capital of \$250,000, is planning for the installation of electrically operated haulage, coal-handling and other equipment at its properties on Bingamon Creek, Harrison County, recently acquired from the Consolidation Coal Co. C. W. Downs is secretary and treasurer.

The Puncture Proof Tube & Supply Co., Norfolk, W. Va.,

has been incorporated with a capital of \$100,000 by W. A. Creager and R. W. Newton, Norfolk, and Thomas Miller, Elkhorn, W. Va., to manufacture automobile tubes and other rubber products.

## Cincinnati

CINCINNATI, May 9.

The Big Four Railroad is inquiring for approximately \$80,000 worth of tools for shops throughout its system, including lathes, drilling machines and boring mills. While it is not expected that the full list will be bought, part of it will be awarded shortly. With this exception the market is practically devoid of inquiries of any size, but prices on a number of single machines are being quoted. Some activity is noted among coal mining companies in West Virginia, but most of this is for used tools. A project soon to come to a head is a shop for the Louisville & Nashville Railroad at Hazard, Ky., for which a list of tools is expected. Some South American and Far Eastern inquiries are also being figured on. The small tool market is fairly active, and a comparison of the month of April with the same period last year shows that sales were averaging about 50 per cent of last year's totals. A marked improvement was noticed toward the last of the month, which has continued into the first week of May. Used machinery dealers report business only fair. A number of lists of used tools have been sent out by industrial concerns desiring to get rid of a portion of their present equipment, one being for approximately 175 machines.

The Shepard Elevator Co., Cincinnati, has been incorporated with a capitalization of \$100,000 to build elevators. Definite arrangements for a plant have not been completed, but it is expected that a factory will be secured within the next week or two. Oscar F. Shepard, 573 Evanswood Place, Cincinnati, for 25 years connected with the Warner Elevator Co., heads the company.

The Davis Welding & Mfg. Co., Cincinnati, has purchased approximately 12½ acres in the Northside section of the city, to be eventually used for the erection of a new plant. No definite steps have as yet been taken.

The Buckeye Boiler Co., Dayton, Ohio, which recently increased its capitalization from \$25,000 to \$100,000, will add a line of pneumatic and underground tanks to its present products. It also has plans under consideration for additions. F. J. Schneider, Jr., is president.

## Detroit

DETROIT, May 9.

The City Pattern Works, 518 West Congress Street, Detroit, has purchased the factory and foundry buildings at Harper Avenue and Rivard Street, now occupied by the Utility Compressor Co. and the Detroit Torch Co. Possession will be taken in August when the new owners propose to remodel the buildings. Wood and metal patterns and foundry equipment will be manufactured as heretofore.

As soon as the Michigan Central Railroad Co. completes a new siding for the Cheboygan Tile & Brick Co., Cheboygan, Mich., the company will start construction of a new plant.

The French Paper Co., Niles, Mich., will erect a new power plant this summer.

The Kirchen Machine Co., Lansing, Mich., is planning additions to its works, the outcome of the formation of a partnership between O. J. Kirchen, formerly sole proprietor of the company, and W. G. Conway, Lansing. New equipment will be placed on the second floor and in the basement of the plant, which will give 5200 additional ft. of floor space. A new carbonizing unit is being installed and later a new welding outfit will be put in operation. The company will manufacture piston rings, piston pins, bearings, bushings and primers.

Incorporation papers have been filed by the Attwood Brass Works, Grand Rapids, Mich., with a capital stock of \$75,000. Those interested are Charles F., Charles E., Lillian E. and Hazel Attwood.

The Osgard File Works, Detroit, has been incorporated with a capitalization of \$25,000 to manufacture and salvage files, tools and mechanical equipment. The incorporators are E. M. Osgard, 225 Orleans Street, Detroit, and E. L. and H. K. Deacon.

The Timken-Detroit Axle Co., Clark Avenue, Detroit, manufacturer of automobile axles, will build a new one-story turbine power house to cost about \$35,000. H. W. Alden is secretary.

The Detroit Steering Control Co., Detroit, has been incorporated with a capital of \$20,000 by Maurice N. Prange, Frank J. Jeschke and Franklin L. Lord, 2101 Jefferson Avenue, to manufacture steering devices and other automobile equipment.

The Monarch Pattern Works, 1426 Russell Street, De-

troit, has plans under way for a new two-story plant, 40 x 100 ft., brick and steel, on property recently acquired at Marysville, Mich., estimated to cost about \$42,000.

The Universal Lightning Rod Co., Owosso, Mich., has been incorporated with a capital of \$25,000 by F. A. and J. B. Lewis, and Gilbert Taylor, Owosso, to manufacture lightning rods and other metal products.

The Common Council, Detroit, has authorized the preparation of plans and specifications for a municipal electric power plant. The Public Light Commission will be in charge.

Officials of the Saxon Motor Co., Detroit, have organized the Saxon Service Corporation to take over the manufacture and distribution of parts for former automobile models of the company. The branch of the business was sold to the new company for \$550,000.

William Cote, Lansing, Mich., is planning to rebuild his machine shop at 117 Woodlawn Avenue, destroyed by fire, May 3.

## Baltimore

BALTIMORE, May 9.

The American Foundry & Mfg. Co., South Street, Frederick, Md., is planning for the erection of a one-story addition to its machine shop and foundry. The company recently increased its capital to \$200,000 for expansion. John E. Shell, Jr., is general manager.

The Maryland Traylor Truck & Tractor Co., 108 South Street, Baltimore, has been incorporated with a capital of \$30,000 by Addison E. Mullikin, Theodore C. Waters and F. Stanley Porter, to manufacture motor truck parts and operate a general machine repair works.

The O. J. Keller Lime Co., Frederick, Md., will build a new hydrated lime plant on a local site. All machinery will be operated with individual motor drive and the installation will include hoisting and loading machinery, conveying equipment, etc. Richard K. Meade & Co., 13 East Fayette Street, Baltimore, is engineer.

The Port Development Commission, Baltimore, has acquired the waterfront properties of the Coastwise Shipbuilding Co., McComas Street, for \$212,500. The tract has 423 ft. of waterfront and is about 1400 ft. in depth.

The John A. Belvin Estate, 18 North Ninth Street, Richmond, Va., has awarded a contract to Davis Brothers, 2510 West Main Street, for rebuilding its foundry at 21 North Twelfth Street, recently damaged by fire. H. Seldon Taylor is head.

The Automatic Gas Saver Corporation, Harrisonburg, Va., has been incorporated with a capital of \$50,000, to manufacture gas-saving devices and gas-burning equipment. E. M. Flory is president, and R. L. Custer, secretary.

In connection with the development of Mayview Park, W. L. Alexander, Blowing Rock, N. C., and associates, are planning for the establishment of an electric light and power plant to furnish service in this section.

The Diamond Holdfast Rubber Co., 33 Auburn Avenue, Atlanta, Ga., has acquired about 10 acres for the erection of a new one and two-story factory to manufacture rubber products.

The National Auto Top Co., Richmond, Va., is planning for enlargements, to include a department for the manufacture of metal automobile bodies. A list of equipment is being arranged.

The Master Products Co., 1107 East Cary Street, Richmond, Va., will install can and bottle-filling machinery, tank equipment, transmission and other operating machinery in its new plant for the manufacture of polishes for automobile service. Bids will be asked in about 60 days. E. R. Aiken is president.

The American Foundry & Mfg. Co., Frederick, Md., plans to enlarge its facilities. J. E. Shell is manager.

## Indiana

INDIANAPOLIS, May 9.

The Crane Co., 836 South Michigan Avenue, Chicago, has plans under way for a one-story machine shop at East Chicago, Ind., to be used in conjunction with a new branch warehouse. The work will cost about \$30,000.

The Universal Wheel Co., Muncie, Ind., has been incorporated with a capital of \$100,000 by A. W. Fort, Nicholas Ratchford and Lewis Caldwell, Muncie, to manufacture wheels for automobile service.

The Barrett Coal Co., 349 West McCarty Street, Indianapolis, is having plans prepared for a one-story, brick machine shop, 32 x 90 ft., for general equipment repairs, parts manufacture, etc.

The Standard Oil Co. of Indiana, Indianapolis, will triple



the capacity of its refinery in the vicinity of Casper, Wyo., which it expects to have ready for service by the end of the year. It is also arranging to increase its equipment for gasoline production at its refineries in Indiana, Illinois and Colorado.

Elwood Haynes, Kokomo, Ind., automobile manufacturer, has been elected director of the Stevenson Gear Mfg. Co., Indianapolis. Other directors are: G. E. Stevenson, G. R. Stevenson, E. C. Jones, Indianapolis; Simeon McQuilston, Kokomo; T. J. Stephenson, Anderson, Ind., and R. T. Wingo, Detroit. A subsidiary plant will be built at Detroit.

## The Gulf States

BIRMINGHAM, May 9.

The Stroud Motor Mfg. Co., San Antonio, Tex., recently organized with a capital of \$2,000,000 to manufacture motor-driven tractors, will occupy two existing buildings, 100 x 440 ft., and 80 x 140 ft., for its initial works, and proposes to build a number of extensions in the near future. Samuel W. Stroud is president and general manager.

Manton & Givens, San Antonio, Tex., have completed plans for a new automobile service works and repair plant, 100 x 100 ft., and will break ground at once.

The Bennett Petroleum Co., Houston, Tex., has arranged for an appropriation of \$100,000 for extensions and improvements in its works at Texas City, Tex. Mills Bennett is president.

The Bering Tire & Repair Co., 100 Main Street, Houston, Tex., is planning for the erection of a new three-story factory, 75 x 100 ft.

The Birmingham Slag Co., Birmingham, has preliminary plans under way for a new factory to manufacture brick, tile and affiliated products.

The City Dock Commission, Jacksonville, Fla., is planning for the installation of loading and conveying machinery on the municipal docks. In connection with general improvements and extensions in the docks, the work will cost about \$1,000,000. John S. Bond is chairman of the commission.

The San Angelo Water, Light & Power Co., San Angelo, Tex., is planning for extensions in its electric power plant to double the present capacity. The work will cost about \$75,000, including machinery.

The Pidcock-Roberts Co., Burnell, Fla., recently organized, is planning for the installation of washing equipment, grinding machinery and drying apparatus at its new plant. J. N. Pidcock is president, and N. E. Roberts, vice-president.

G. M. Thomas, Marianna, Fla., and associates, have plans under way for the erection of a new hydroelectric generating plant in this vicinity. The Albany Electric Co., Albany, Ga., is engineer.

The Marine Ways Machinery Co., St. Petersburg, Fla., is planning to make improvements and install additional machinery. J. W. Appleby is manager.

The Smith Foundry & Machine Works, Gulfport, Miss., D. E. Morris and others interested, will install about \$50,000 worth of additional equipment.

## California

LOS ANGELES, May 9.

The Santa Fe Railroad Co., Los Angeles, has awarded contract to Joseph E. Nelson & Sons, 3240 South Michigan Avenue, Chicago, for a one-story forge shop at San Bernardino, Cal., 80 x 307 ft.

Ford's Federated Tractors of San Francisco, has been incorporated with a capital of \$2,000,000 by Arthur W. Ford, R. N. Hellman and B. V. Davis, all of Oroville, Cal., to manufacture motor-driven farm tractors.

The Kahler Sprinkler & Brass Mfg. Co., 367 Fair Oaks Avenue, Pasadena, Cal., has filed notice of organization to manufacture brass, bronze and other metal products. It is headed by William T. Kahler.

The Hanford Cement Brick Products Co., Hanford, Cal., is contemplating the installation of additional machinery at its plant to increase the capacity. G. W. Westlake is head.

The West Coast Asbestos Co., Downey, Cal., is planning for the erection of several additions to double the present capacity. New machinery will be installed.

The Mineral Metals & By-Products Co., Denver, Colo., is negotiating with the Chamber of Commerce, San Mateo, Cal., for a suitable site on the waterfront for the erection of a new plant. J. J. McGrath, president of the Chamber of Commerce, is handling the details.

The Dixon Air Heater Co., 1007 North Coronado Street, Los Angeles, has filed notice of organization to manufacture heating apparatus. J. B. Prather heads the company.

The San Diego Consolidated Gas & Electric Co., San Diego, Cal., is planning for extensions and improvements in its electric power plants and system to cost about \$520,000. An appropriation is being arranged.

The United States Steel Products Co., 30 Church Street, New York, is perfecting plans for new works on the American River, adjoining the shops of the Southern Pacific Railroad, near Sacramento, Cal. It will develop a daily output of about 200 tons of material, and it is said will cost in excess of \$2,000,000.

The Los Angeles Retinning Co., 2213 East Ninth Street, Los Angeles, has filed notice of organization to manufacture metal products. John Daxer, 330½ West Seventeenth Street, heads the company.

## Milwaukee

MILWAUKEE, May 9.

While the machine tool business continues dull and stagnant, the developments toward further readjustment in the iron and steel situation, it is hoped, will soon have a discernible influence upon the machine tool market. At present trade is drifting, with sales limited to single tools for immediate delivery. An encouraging sign is the larger number of orders for special types and designs not in stock which are being put into production and help to sustain operating schedules on at least a part-time basis. The demand for used tools continues relatively more active than for new machines, and a great many machines offered as used equipment never were in actual production, being war residue.

The Falls Motors Corporation, Sheboygan Falls, Wis., has completed improvements and additions to increase efficiency as well as provide greater production. The plant is now being operated on a full-time schedule, with some departments working overtime, to fill orders for power units for passenger cars, motor trucks and tractors. The additions include a new forge shop, heat-treating department, and a new testing room. Practically all of the equipment has been installed, but additional machines are being purchased from time to time as needs require. C. M. Fitch is general manager.

The W. M. Mullins Mfg. Co., Hilbert, Wis., a new corporation with \$200,000 capital, is a consolidation of the interests of the Mullins Mfg. Co., Brillion, Wis., and the Hilbert Mfg. Co., Hilbert, Wis., with plant and offices at Hilbert. The Mullins company manufactures steel barn equipment, milking machines, and similar specialties, while the Hilbert company makes ensilage cutters and other power-driven farm equipment. Work will start at once on a one-story brick and concrete factory addition, 60 x 120 ft., at Hilbert, to accommodate the transfer of the Mullins equipment from Brillion. It will be ready about June 15. W. M. Mullins is president and general manager of the consolidation.

The Twentieth Century Machinery Co. 394-398 Greenbush Street, Milwaukee, manufacturer of bottlers' and canners' machinery and equipment, has incorporated under the same style, with a capital stock of \$400,000. Henry Scarborough continues as president and general manager, and no change in the policies or the operation of the company are contemplated.

N. H. Ordng, Sheboygan, Wis., for many years a member of the Prange-Geussenhainer Hardware Co., and in charge of its sheet metal department, has withdrawn and established a new sheet metal works in the same city, under the style of the Independent Sheet Metal Co. It will manufacture a general line of builders' supplies, industrial blowers, roofing, furnaces, etc.

The Rowley Packing Co., Racine, Wis., a new corporation, has plans for a two-story fireproof plant and cold storage building, 96 x 200 ft., of brick and reinforced concrete, to cost about \$50,000 with equipment. Work will start at once.

The T. G. Kohl Co., Wausau, Wis., has been organized by T. G. Kohl, inventor and patentee of a machine designed for cleaning chimneys, stacks, flues, etc. A plant is being equipped in an idle factory owned by the city of Wausau, which has given free rental for one year and an option to purchase at the end of the period. William and Paul Kohl and J. C. Anderes are associated with Mr. Kohl in the enterprise.

The Screen Sash Locking Means, Inc., Wausau, Wis., has been organized with \$150,000 capital stock to manufacture a line of patented fixtures, safety devices and other hardware specialties for sash, doors and building purposes generally. The incorporators are William E. Moore, Joseph E. Hulehan and Edward F. Fahl.

The Northern Sash & Door Co., Hawkins, Wis., has been incorporated with a capital stock of \$50,000 to erect a new wood-working factory, with boiler and engine room, dry kilns, etc. The incorporators are Jens Jesdahl, O. L. Hotz

and R. J. Ellingson. Construction work will begin immediately.

Erol X. Smith, architect and engineer, 305 East Fifty-fifth Street, Chicago, is preparing plans for a boiler house and power plant, in connection with a hospital to be erected in Waukesha, Wis., for Dr. I. J. Frisch. It is expected to begin work about June 15.

The Board of Education, Fond du Lac, Wis., has engaged J. E. Hennen, local architect, to prepare plans for a two-story addition, 50 x 160 ft., to the Central Continuation School to provide additional manual training shops. It will cost about \$60,000, not including equipment. R. W. Fairchild is superintendent.

The North East Power Co., subsidiary of the Wisconsin Public Service Co., 425 East Water Street, Milwaukee, has made application to the Railroad Commission of Wisconsin for authority to proceed with a hydroelectric power plant project on the Peshtigo River, near Ellis Junction, Wis., which involves an investment of \$3,500,000. Two sites are to be developed by the construction of concrete dams, reservoirs and generating plants. The project is in charge of Mead & Seastone, consulting engineers, Madison, Wis.

The Board of Education, Chetek, Wis., has engaged W. L. Alban, architect, 347 Endicott Building, St. Paul, Minn., to design a junior high and manual training institute, two stories, 50 x 110 ft., to cost about \$90,000 with equipment. J. W. Bell is secretary of the board.

## The Central South

ST. LOUIS, May 9.

The Walsh Motor Co., 4919 Delmar Street, St. Louis, is considering the erection of a new two-story service and repair plant at 5135 Delmar Street, to cost about \$75,000. W. D. Walsh is president.

Samuel Hickman, Boonville, Mo., and associates, are organizing a company with capital of \$200,000 to establish a plant for the manufacture of collapsible metal rims for automobile wheels.

W. S. Mitchell, Boonville, Mo., and associates, are perfecting plans for the erection of a new two-story plant for the manufacture of automobile tires. It will cost about \$200,000 with machinery.

The G. Harris Buick Co., Ardmore, Okla., is planning for the erection of an addition to its plant at 108 North Washington Street, comprising a two-story, brick service and repair works, 50 x 140 ft., to cost about \$75,000.

The Standard Steel Works, 1722 Tracy Street, Kansas City, Mo., has awarded contract to the Fred Crites Co., 2136 Belleview Street, for its new one and two-story plant at North Kansas City, to cost about \$75,000, including machinery. It will be used for the manufacture of sheet steel and other metal products.

Fire, May 2, destroyed the machine shop of Wagner & Davis, Sixth and Walnut streets, Rich Hill, Mo. The plant will be rebuilt.

The Steargean Repeating Arms Co., Nashville, Tenn., has leased a portion of the Old Hickory plant of the Government, near Nashville, for the establishment of works to manufacture rifles and other firearms.

The City Council, Minneapolis, Kan., has approved a bond issue of \$60,000 for the installation of a municipal electric power plant. A. D. Todd is city clerk.

The Paducah Iron Co., South Third Street, Paducah, Ky., is planning to rebuild the portion of its plant, recently destroyed by fire. The loss included three works buildings.

The Davie Motor Co., 1900 Washington Street, St. Louis is planning for a new one-story machine works and service building on Hodiamont Alley, to cost about \$45,000. A. F. Davie is president.

The Common Council, Martin, Tenn., will soon have plans prepared for the construction of the proposed new municipal electric light and power plant, estimated to cost about \$100,000. Bonds for this amount have been arranged. George P. Hurt is mayor.

The Okmulgee Brick Co., Okmulgee, Okla., is planning for the erection of new works to specialize in the manufacture of paving brick, estimated to cost about \$200,000 with machinery. R. E. Buckles is head.

## Canada

TORONTO, May 9.

Dealers in this section experienced a slight improvement in the demand for machine tools the past week. Wood-working machinery is pushing ahead, but small tools have shown practically no improvement, sales being light and confined to immediate requirements. Second-hand equipment is fairly brisk.

The English Electric Co., it is understood, will extend its operations to Canada and establish factories in Toronto for the manufacture of electrical machinery and equipment. Among its directors are Sir John Mansell, Lord Meston and representatives of John Brown & Co., Cammell, Laird & Co., Thomas Firth & Sons and Harland & Wolff. Gordon F. Perry, president National Iron Corporation, Toronto, has been appointed chairman of the Canadian board.

The Superior Wrench & Tool Co., Ltd., Toronto, has been incorporated with a capital stock of \$40,000 by Henry Dreaux, 189 Westminster Avenue; William Johnston, Stanley F. Hayes and others, to manufacture wrenches, tools, equipment, etc.

L. R. Reynolds, Tramping Lake, Sask., is in the market for a lathe, drill press and cylinder boring machine.

James Cunningham, 34 Brock Avenue, Montreal, is in the market for a used ball mill and tube mill.

Norman Demaine, Ashworth, Ont., is in the market for garage equipment.

D. L. Ancoin, 3187 Henri Julien, Montreal, is in the market for garage equipment, including drill press, air compressor and tank, two vises, forge blower and anvil, grinder, countershaft, shafting, hangers, pulleys, etc.

The Town Council, Truro, N. S., will purchase \$23,000 worth of electrical machinery. H. McDougall is clerk.

McCulloch Brothers, Debert, N. S., near Truro, contemplate the erection of wood-working factory to cost \$10,000. New equipment will be purchased.

The Blashill Wire Machinery Co., Montreal, is in the market for a portable electric welder capable of handling the work of butt welding wire up to and including No. 9 gage. It expects to commence the manufacture of wire fencing in a short time at its Shearer Street plant.

The Superior Brick & Tile Co., Ltd., Fort William, Ont., has acquired the brick works formerly owned by the Superior Brick Co. and is installing equipment to improve manufacturing methods. It has increased its capital stock from \$40,000 to \$250,000 and has changed its name from the Superior Tile Co. to the Superior Brick & Tile Co.

The boiler shops of the National Shipbuilding Co., Maitland Street, Goderich, Ont., were destroyed by fire May 4 with a loss to building and equipment of \$100,000. Among the machines destroyed were two valued at \$40,000. Rebuilding will begin at once.

## Midvale's Quarterly Earnings Show Deficit

Subject to revision to meet any changes in the interpretation of the Federal tax laws, regulations and rulings, the Midvale Steel & Ordnance Co., in its earnings statement for the quarter ended March 31 shows a deficit of \$1,395,202. In the preceding quarter the company, after all charges and taxes, had a net profit of \$2,056,724, or \$1.02 a share, and in the three months ended March 31, 1920, a profit of \$1,516,997, or 75c. per share. Earnings for the past quarter compare with those for the corresponding period last year as follows:

	1921	1920	Decrease
Net earnings .....	\$536,577	\$3,669,685	\$3,163,108
Interest .....	760,287	776,753	16,466
Depreciation, etc. ....	1,171,492	1,375,935	204,443
Profit .....	*1,395,202	1,516,997	2,912,199

\*Deficit.

## Cambria Steel Co. Report

The 1920 income account of the Cambria Steel Co., which is controlled by the Midvale Steel & Ordnance Co., compares as follows:

	1920	1919	Increase
Net earnings .....	\$13,634,000	\$6,646,806	\$6,987,194
Depreciation, etc. ....	3,312,164	2,132,422	1,179,742
Balance .....	10,321,836	4,514,384	5,807,452
Cambria Iron lease, etc.	338,720	338,720	.....
Net income .....	9,983,116	4,175,664	5,807,452
Dividends .....	3,600,000	4,050,000	*450,000
Surplus .....	6,383,000	125,661	6,257,339

\*Decrease.

In 1920, the Allis-Chalmers Mfg. Co. billed sales of \$31,516,209, contrasted with \$30,224,083 in 1919, and \$35,031,233 in 1918. The manufacturing profits were \$4,177,128, \$5,396,525 and \$9,471,646, in 1920, 1919 and 1918, respectively. Last year there was a net profit after depreciation, taxes and all other charges including the preferred dividend of \$3,564,248, equal to \$9.27 a share on the outstanding \$26,000,000 common stock.

The physical assets of the Kentucky Iron & Steel Co., Louisville, Ky., were bid in by the Louisville Trust Co. for \$112,255 at a sale in the bankruptcy court. The court ordered the bid tentatively accepted, but did not close the sale, pending the examination of the plant by a number of Chicago interests which are considering the purchase of the property.



## IRON AND INDUSTRIAL STOCKS

## Recent Quotations Indicate Growing Confidence in Banking and Investment Circles

Constructive developments outweigh destructive, especially as they pertain to fundamentals. Many indications are at hand indicating a turn for the better in the transportation situation. The abrogation by the Railroad Labor Board of national agreements estimated to have cost the roads \$500,000,000, the decrease in the idle car surplus and a slightly easier tendency in railroad supplies should in the long run increase the purchasing power of the carriers. The recent reduction in prices for its products, followed by the intention to reduce wages announced by the United States Steel Corporation, is viewed in a constructive light in investment circles. Better prices for our war bonds, a further strengthening of bank reserves, greater economy in Government expenditures, the more hopeful outlook for a settlement with Germany, and the general readjustment of labor's wages, although attended by numerous strikes, have more than offset the few adverse developments of the past week, and account in a large measure for greater investment confidence, as is attested in prices for iron and industrial securities.

The range of prices on active iron and industrial stocks from Saturday of last week to Monday of this week was as follows:

Allis-Chalm. com.	37½-39½	Lackawanna Steel.	52½-54
Allis-Chalm. pf.	77½-78½	Midvale Steel....	28½-29½
Am. Can. com....	31½-32½	Nat.-Acme .....	21½-22½
Am. Can. pf.....	83½-84½	Nat. E. & S. com.	61½-64
Am. C. & F. com.	127-129½	N. Y. Air Brake..	76-78
Am. C. & F. pf....	111½-111½	Nova Scotia Steel.	33-36½
Am. Loco. com....	88½-91½	Pittsb'gh Steel pf.	82-83
Am. Loco. pf.....	-104	Press. Steel com..	89½-91
Am. Radiator com.	70-70½	Press. Steel pf....	-91
Am. Steel F. com.	30½-31½	Ry. Stl. Spg. com.	89-90½
Am. Steel F. pf....	89½-92½	Ry. Stl. Spg. pf...	-98
Bald. Loco. com..	-101	Replogle Steel....	32-34½
Beth. Steel com..	57½-62½	Republic, com....	63½-66½
Beth. Stl. Cl. B..	59½-65	Republic pf.....	-93
Beth. Stl. 8% pf.	104½-104½	Sloss com.....	43-44½
Chic. Pneu. Tool..	63½-67½	Superior Steel....	42½-43
Colorado Fuel....	30½-32½	Transue-Williams.	42-43½
Cruc. Steel com..	81-86½	Un. Alloy Steel...	30½-32
Cruc. Steel pf....	-85½	U. S. Pipe com....	17½-19
General Electric.	136½-138½	U. S. Steel com....	83-86½
Gl. No. Ore Cert.	30-31½	U. S. Steel pf....	108½-109½
Gulf States Steel.	36-48½	Vanadium Steel...	35½-40
Int. Har. com....	93-97	Va. I. C. & Coke..	86-87
Int. Har. pf.....	-105	Westingh'se Elec.	47½-49

## Improved Financial Conditions

YOUNGSTOWN, OHIO, May 10.—Since the opening of the current year, marked strides have been taken toward betterment of the financial condition of numerous industrial concerns, through liquidation of inventories and bills receivable, thus greatly strengthening their cash position. Improved cash positions of such industrial units are expected to be reflected in heavy purchases that will stimulate trade, once the return toward normal becomes more pronounced. In the past few months the cash positions of most of the leading iron and steel interests in the Mahoning Valley have been undergoing gratifying changes. When the year closed, most of them reported a large aggregate of bills receivable and heavy inventories, but the intervening months have witnessed a great change for the better in these respects. Current liabilities, for instance, of one large company, which were reported in excess of \$10,000,000 at the close of 1920, are now said to be less than half that amount, while striking improvement has taken place with other interests.

The second quarter is, however, likely to produce losses for a number of large independents which were on the borderline in the first quarter, or reported small profits due to carryover business from 1920. Liquidation of costs is still going on in a small way, and no effort is spared to inaugurate economies in production. Engineering forces, in fact, are bending their energies along this line. The biggest obstacle in the way of further reducing costs, however, is in the assembly charges, which all steel makers are complaining are excessive.

## Industrial Finances

A meeting of the stockholders of the Morgan Engineering Co., Alliance, Ohio, will be held May 21 to take action on a proposed increase in the capital stock of the company from \$3,000,000 to \$5,000,000, of which \$3,500,000 will be common stock and \$1,500,000 preferred stock. The stockholders will also consider an amendment to the company's charter, permitting it to provide for capital stock of \$7,000,000.

Plans for the reorganization of the Standard Parts Co.,

Cleveland, have been formally approved by the creditors' committee. It is stated that a large number of the creditors have approved the plans, but no further steps will be taken toward the reorganization until further consents are secured.

The American Turret Tool Co., Cleveland, has increased its capital stock from \$10,000 to \$50,000.

The Cleveland Knife & Forge Co., Cleveland, has increased its capital stock from \$60,000 to \$100,000.

The American Steel & Wire Co. has filed a statement of financial condition as of Feb. 28 last with the secretary of Massachusetts which shows total assets and liabilities of \$245,474,194, contrasted with \$237,359,355 at the close of the previous year. There was no increase in the capital stock during the year.

For 1920 Fairbanks, Morse & Co. showed net earnings after all charges, including depreciation and sinking fund, amounting to \$2,678,735. The net earnings for 1919 were \$3,289,255. At the close of the year the surplus account stood at \$1,010,981, whereas at the end of 1919 it was \$2,388,413.

The Pittsburgh Steel Co. reports sales for the nine months ended March 31 at \$20,154,531, as against \$20,192,634 in the same period last year, a decrease of \$38,103, and net profits, after writing down inventory to market price or cost, and other adjustments, of \$1,783,766, as against \$1,150,502, an increase of \$233,264.

The American Steel Foundries reported a surplus for the quarter ended March 31, after charges and Federal taxes, of \$518,280, equivalent, after allowing for preferred dividends, to 60c a share earned on the \$20,401,000 common stock. This compared to a surplus of \$1,415,295, equal to \$2.44 a share earned on the \$17,184,000 stock then outstanding in the corresponding quarter in 1920. Net earnings amounted to \$879,717, against \$2,066,713. The balance netted \$726,869, contrasted with \$1,939,222. Total income was \$821,173, compared to \$2,061,437.

The Flannery Bolt Co., Vanadium Building, Pittsburgh, manufacturer of bolts, nuts, rivets, etc., has arranged for a bond issue of \$750,000. J. Rogers Flannery is president.

The Buckeye Boiler Co. Dayton, Ohio, boiler manufacturer, has been authorized to increase its capitalization from \$25,000 to \$100,000.

Stockholders of the United Engineering & Foundry Co., Pittsburgh, ratified the directors' proposal to increase the capital stock from \$7,500,000 to \$17,500,000 by raising the common authorization from \$5,000,000 to \$15,000,000, at a meeting April 26.

The Virginia Iron, Coal & Coke Co., Roanoke, Va., reports gross earnings for the three months ended March 31 of \$633,737. Interest, taxes, etc., amounted to \$162,381, leaving net earnings of \$471,356.

For the first three months of 1921 the Gulf State Steel Co. operated at a deficit of \$102,917, as against a profit of \$308,938 for the corresponding period last year. The showing during the first quarter of this year is due to the closing down of several departments, reducing present operations to about 20 per cent of normal.

Earnings of the William Cramp & Sons Ship & Engine Building Co., Philadelphia, for 1920, available after dividends, were \$2,134,554, which, after deducting federal taxes, equals \$14 a share on the \$15,245,000 stock outstanding. In 1919 the company earned \$34.50 a share on \$6,098,000 stock, and in 1918 \$29.63.

## Favorable Effect Expected

YOUNGSTOWN, May 9.—Common labor wage rates go to the same basis in the plants of the independent iron and steel producers and the Steel Corporation by the 20 per cent wage reduction which becomes effective May 16 at the properties of the leading interest.

With the Mahoning Valley plants of the Carnegie Steel Co., a subsidiary of the Steel Corporation, operating to capacity, about 7000 workmen are employed. At present, however, owing to slack in production, only about one-half this number is employed and will be affected by the wage reduction.

The cut will also affect a large number of men employed by the leading interest in New Castle, Sharon and Farrell in the Shenango Valley in Pennsylvania.

Independent interests generally believe that the reduction will engender a feeling of stability among buyers and that the market will be favorably influenced.

# Current Metal Prices

On Small Lots, Delivered from Merchants' Stocks, New York City

The quotations given below are for small lots, as sold from stores in New York City by merchants carrying stocks.

As there are many consumers whose requirements are not sufficiently heavy to warrant their placing orders with manufacturers for shipment in carload lots from mills, these prices are given for their convenience.

## Iron and Soft Steel Bars and Shapes

Bars:	Per Lb.
Refined bars, base price.....	3.23c.
Swedish bars, base price.....	12.00c.
Soft steel bars, base price.....	3.23c.
Hoops, base price.....	4.38c.
Bands, base price.....	3.93c.
Beams and channels, angles and tees	
3 in. x ¼ in. and larger, base.....	3.23c. to 3.33c.
Channels, angles and tees under 3 in. x	
¼ in., base.....	3.23c.

## Merchant Steel

	Per Lb.
Tire, 1½ x ½ in. and larger.....	3.23c.
(Smooth finish, 1 to 2½ x ¼ in. and larger).....	3.43c.
Toe calk, ½ x ¾ in. and larger.....	3.75c.
Cold-rolled strip, soft and quarter hard.....	10.00c. to 10.50c.
Open-hearth spring steel.....	4.50c. to 8.00c.
Shafting and Screw Stock:	
Rounds.....	4.73c.
Squares, flats and hex.....	5.23c.
Standard cast steel, base price.....	15.00c.
Best cast steel.....	20.00c.
Extra best cast steel.....	25.00c.

## Tank Plates—Steel

¼ in. and heavier.....	3.23c. to 3.33c.
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## Sheets

	Per Lb.
<b>Blue Annealed</b>	
No. 10.....	4.23c. to 4.25c.
No. 12.....	4.28c. to 4.30c.
No. 14.....	4.33c. to 4.35c.
No. 16.....	4.44c. to 4.45c.

## Box Annealed—Black

	Soft Steel C.R., One Pass Per Lb.	Blued Stove Pipe Sheet Per Lb.
Nos. 18 to 20.....	4.95c. to 5.18c.	.....
Nos. 22 and 24.....	5.00c. to 5.23c.	5.60c.
No. 26.....	5.05c. to 5.28c.	5.65c.
No. 28.....	5.15c. to 5.38c.	5.75c.
No. 30.....	5.40c. to 5.63c.	.....

No. 28, 36 in. wide, 10c. higher.

## Galvanized

	Per Lb.
No. 14.....	5.25c. to 5.38c.
No. 16.....	5.50c. to 5.63c.
Nos. 18 and 20.....	5.65c. to 5.78c.
Nos. 22 and 24.....	5.80c. to 5.93c.
No. 26.....	5.95c. to 6.08c.
No. 27.....	6.10c. to 6.23c.
No. 28.....	6.25c. to 6.38c.
No. 30.....	6.75c. to 6.88c.

No. 28, 36 in. wide, 20c. higher.

## Welded Pipe

Standard Steel			Wrought Iron		
	Blk.	Galv.		Blk.	Galv.
½ in. Butt....	—46	—30	¾ in. Butt....	—18	List
¾ in. Butt....	—52	—37	1-½ in. Butt....	—20	—2
1-3 in. Butt....	—54	—40	2 in. Lap....	—14	+3
3-½-6 in. Lap....	—49	—35	2½-6 in. Lap....	—18	—2
7-12 in. Lap....	—40	—24	7-12 in. Lap....	—7	+10

## Steel Wire

	Per Lb.
<b>BASED PRICE* ON NO. 9 GAGE AND COARSER</b>	
Bright basic.....	4.50c. to 4.75c.
Annealed soft.....	4.50c. to 4.75c.
Galvanized annealed.....	5.25c. to 5.50c.
Coppered basic.....	5.00c. to 5.25c.
Tinned soft Bessemer.....	6.00c. to 6.25c.

\*Regular extras for lighter gages.

On a number of articles the base price only is given, it being impossible to name every size.

The wholesale prices at which large lots are sold by manufacturers for direct shipment from mills are given in the market reports appearing in a preceding part of THE IRON AGE under the general heading of "Iron and Steel Markets" and "Metal Markets."

## Brass Sheet, Rod, Tube and Wire

### BASE PRICE

High brass sheet.....	18 c. to 21 c.
High brass wire.....	19¼ c. to 21¼ c.
Brass rod.....	17 c. to 20¼ c.
Brass tube, brazed.....	32 c. to 35¼ c.
Brass tube, seamless.....	21½ c. to 23½ c.
Copper tube, seamless.....	22½ c. to 24½ c.

## Copper Sheets

Sheet copper, hot rolled, 24 oz., 22c. per lb. base.  
Cold rolled, 14 oz. and heavier, 2c. per lb. advance over hot rolled.

## Tin Plates

Bright Tin		Coke—14x20		Primes	Wasters
Grade	Grade				
"AAA"	"A"	80 lb....	\$7.30	\$7.05	
Charcoal	Charcoal	90 lb....	7.40	7.15	
14x20	14x20	100 lb....	7.50	7.25	
IC..	\$11.25	\$10.00	IC....	7.65	7.40
IX..	13.00	11.50	IX....	8.65	8.40
IXX..	14.50	13.00	IXX....	9.65	9.40
IXXX..	15.75	14.25	IXXX....	10.65	10.40
IXXXX..	17.25	15.50	IXXXX....	11.65	11.40

## Terne Plates

8-lb. Coating 14 x 20	
100 lb. ....	\$8.35
IC.....	8.50
IX.....	9.50
Fire door stock.....	11.50

## Tin

Straits pig.....	35c.
Bar.....	38c. to 40c.

## Copper

Lake ingot.....	15c.
Electrolytic.....	15c.
Casting.....	15c.

## Spelter and Sheet Zinc

Western spelter.....	6¼ c. to 7c.
Sheet zinc, No. 9 base, casks.....	12c. open 13c.

## Lead and Solder\*

American pig lead.....	6c.
Bar lead.....	6½ c. to 7¼ c.
Solder, ½ and ½ guaranteed.....	23c.
No. 1 solder.....	21½ c.
Refined solder.....	17½ c.

\*Prices of solder indicated by private brand vary according to composition.

## Babbitt Metal

Best grade, per lb.....	80c.
Commercial grade, per lb.....	40c.
Grade D, per lb.....	35c.

## Antimony

Asiatic.....	6½ c. to 7c.
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## Aluminum

No. 1 aluminum (guaranteed over 99 per cent pure), in ingots for remelting, per lb....	30c. to 33c.
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## Old Metals

The market shows more activity this week and prices are firm. Dealers' buying prices are nominally as follows:

	Cents Per Lb.
Copper, heavy and crucible.....	9.25
Copper, heavy and wire.....	9.00
Copper, light and bottoms.....	7.50
Brass, heavy.....	5.50
Brass, light.....	4.25
Heavy machine composition.....	9.50
No. 1 yellow brass turnings.....	5.00
No. 1 red brass or composition turnings.....	7.50
Lead, heavy.....	3.75
Lead, tea.....	2.75
Zinc.....	3.00



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